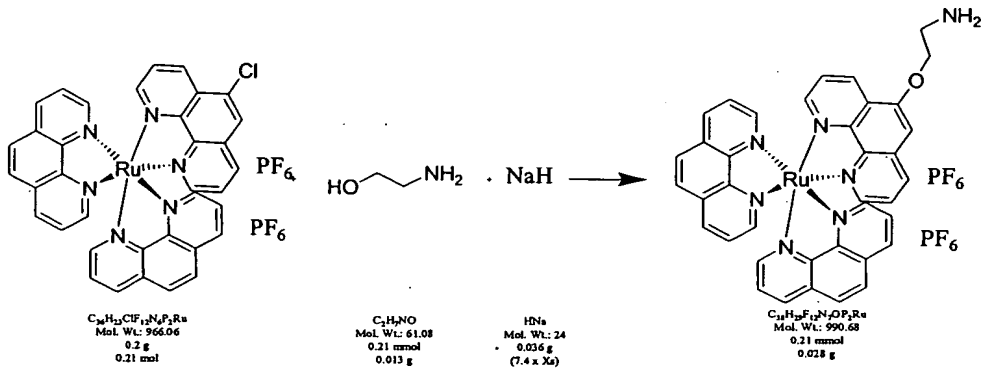
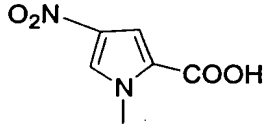
Synthesis of [Ru(phen)2(Phen-4-NH_2-CH_2CH_2-NH_2)]$(PF_6)_2$



The ruthenium complex, [Ru(phen)$_2$4-Cl-Phen]$(PF_6)_2$ (0.2 g, 0.21 mmol) was also suspended in deaerated DMF (5 mL) while separately NaH (0.036 g, 1.5 mmol) was also suspended in a stirring solution of dry, deaerated DMF (5 mL). Ethanolamine (12.8 µL, 0.21 mmol) was added to the solution of NaH. The two solutions were mixed via cannula and the resulting black solution heated at 40 °C for 2 hr. The solution was evaporated to dryness under reduced pressure leaving a red black residue which was purified by flash chromatography on silica gel, eluting with acetonitrile (5% saturated KNO_3 solution and 10 % water). Fractions containing unreacted starting complex and product were isolated by TLC (SiO_2, ACN/5% saturated KNO_3/10% H_2O). These fractions were combined, reduced to dryness then extracted into dichloromethane (4 x 100 mL) from H_2O (100 mL). The extracts were reduced to dryness and subsequently purified on a column of TLC grade silica gel (ACN/1% saturated KNO_3/10% H_2O). This purification achieved a separation of bands containing unreacted starting complex and product. The product (band 2) was collected, reduced to dryness then extracted into dichloromethane (4 x 100 mL) from H_2O (100 mL). Evaporation of the solution to dryness under reduced pressure gave the product as a deep red solid. ^{1}H NMR (CD_3CN): 8.54 (d, 4H), 8.44 (dd, 2H), 8.28 (d, 1H), 8.23 (s, 4H), 8.18 (d, 1H), 8.08 (d, 1H), 8.00 (d, 1H), 7.83 (d, 1H), 7.76 (d, 1H), 7.65 (bm, 4H), 7.40 (dd, 1H), 6.70 (d, 1H), 6.38 (d, 1H), 1.30 (bs, 4H).

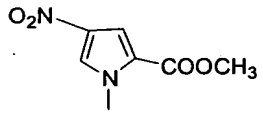
1-Methyl-4-nitropyrrole-2-carboxylic acid



Acetic anhydride (20 mL) was treated with nitric acid (4.0 mL, 70%) and the mixture heated to 50 °C for 15 min then cooled to room temperature, and slowly added to a suspension of of 1-methyl-2-pyrrolecarboxylic acid (4 g , 15.98 mmol) in of Ac_2O (12 mL) cooled to -25 °C. The mixture was stirred at -15 °C for 0.5 hr, then the temperature

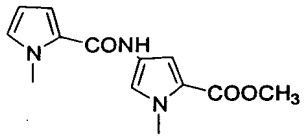
was allowed to rise to ambient, and stirring was continued for 20 min. The mixture was again cooled to -25 °C and the precipitate collected in a funnel cooled with dry ice, the solid was washed with a small quantity of cold Ac_2O (-25 °C). The crystalline solid was taken up in water containing NaOH (1 g). Acidification with the HCl precipitated the pure compound. NMR as previously reported.

Methyl 1-methyl-4nitropyrrole-2-carboxylate



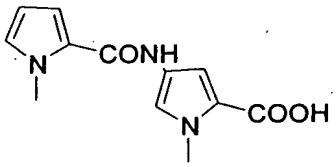
A cold solution of H_2SO_4 (2.9 mL) in MeOH (28.96 mL) was added to 1-methyl-4-nitropyrrole-2-carboxylic acid (2.897 g, 2.35 mmol). The mixture was refluxed for 24 hr. Water was added and the mixture extracted $CHCl_3$. The organic layer was dried ($MgSO_4$), and the solvent evaporated under vacuum to afford the creamy white product. NMR as previously reported.

Py/Py-COOCH$_3$



Methyl *N*-methyl-4-nitro pyrrole-2-carboxylate (0.5 g, 27.17 mmol) in MeOH (64 mL) and Pd/C (10%, 6 mg) was stirred under H_2 (1 atm) until the TLC showed no starting material (1 hr). The mixture was filtered through celite to remove the catalyst and DMF was added (3 mL). MeOH was removed under vacuum. N-methyl pyrrole-2-carboxylic acid (1.3 mol equiv) was added followed by HOBT (88 mg, 1.5 mol equiv), TBTU (209 mg, 1.5 equiv) and Et_3N (220 mg, 5 equiv). The solution was stirred for 1 hr at room temperature and the solvent removed under vacuum. The residue was purified by flash chromatography (100% DCM).

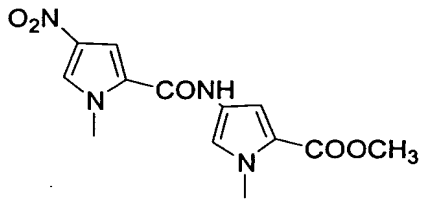
Py/Py-COOH



Py/Py-COOCH$_3$ (360 mg, 1.38 mmol) in THF/MeOH (1.1 / 7.5 mL) was added LiOH (1 M, 5.5 mL) and the solution stirred at 60 °C (oil bath) for 1.5 hr and monitored by TLC (10%, MeOH/CH_2Cl). The organics were evaporated under vacuum, the solution

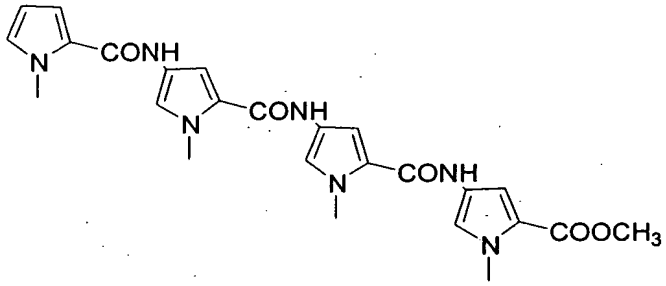
cooled and acidified with HCl (1 M 5mL). The solid was collected and air dried and left in a desiccator under vacuum overnight. NMR as previously reported.

NO_2-Py/Py-$COOCH_3$



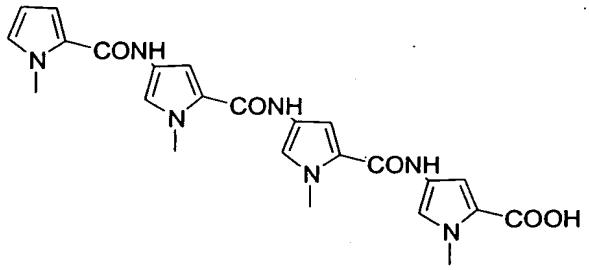
NO_2-Py-$COOCH_3$ (1.45 g, 7.83 mmol) in MeOH (150 mL) and Pd/C (174 mg) was stirred under H_2 (1 atm) for 1 hr. The mixture was the filtered through celite and DMF (3 mL) added. MeOH was removed under vacuum. NO_2-Py-COOH (1.8 g,) was added followed by HOBT (255.2 mg, 1.89 mmol) and TBTU (606 mg, 1.89 mmol) and Et_3N (638 mg, 6.32 mmol). The solution was stirred for 1 hr at room temp and the solvent (DMF) removed under vacuum until a small quantity remained. The pure compound was precipitated by addition of MeOH. %). ^1H NMR (d-DMSO): 10.21 (s, 1H), 8.15 (d, 1H), 7.53 (d, 1H), 7.43 (d, 1H), 6.88 (d, 1H), 3.94 (s, 3H), 3.84 (s, 3H), 3.73 (s, 3H).

Py/Py/Py/Py-$COOCH_3$



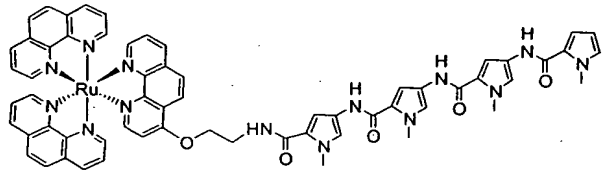
NO_2-Py/Py-$COOCH_3$ (213 mg, 0.69 mmol) was dissolved in DMF (25 mL) and added Pd/C catalyst (15 mg) and stirred under H_2 until the amine was formed. The mixture was filtered through celite and Py/Py-COOH (166 mg, 0.66 mmol) added to the solution followed by HOBT (22 mg, 0.16 mmol), TBTU (51 mg, 0.16 mmol) and Et_3N (53 mg, 0.52 mmol). The reaction was then left to couple for 1.5 hr. The DMF was removed under reduced pressure to yield the compound.

Py/Py/Py/Py-COOH



Py/Py/Py/Py-$COOCH_3$ (100 mg, 0.20 mmol) in DMF (10 mL) was added NaOH (0.75 mL) and the solution stirred at 60 °C for 1 hr. The organics were evaporated until approx. 3 mL remained and acidified with HCl (1 M, 5 mL) to yield the product.

$[Ru(phen)_2(phen\text{-}4\text{-}O\text{-}CH_2CH_2NHCO\text{-}Py/Py/Py/Py](PF_6)_2$



$[Ru(phen)_2(phen\text{-}4\text{-}O\text{-}CH_2CH_2NH_2](PF_6)_2$ (28 mg, 0.03 mmol)dissolved in DMF (25 mL) and added Pd/C catalyst (15 mg) and stirred under H_2 until the amine was formed. The mixture was filtered through celite) and Py/Py/Py/Py-COOH (75 mg, 0.15 mmol) added to the solution followed by HOBT (22 mg, 0.16 mmol), TBTU (51 mg, 0.16 mmol) and Et_3N (53 mg, 0.52 mmol). The reaction was then left to couple for 2 hr. The DMF was removed under reduced pressure to yield the compound.

Y^1 and Y^2 may be the same or different and are independently selected from NH, $-NH_2$, C=O, C=S, C=NH, O, OH, S, SH, S(O), $S(O)_2$, NR^3, NHR^3, $N(R^3)_2$, an optionally substituted cycloalkylamine, an optionally substituted cycloalkyldiamine, and an optionally substituted heteroaryl group (e.g., an optionally substituted N-heteroaryl group such as pyridyl, phenanthrolinyl, 2,2'-bipyridyl); where each R^3 is independently selected from alkyl, cycloalkyl, aryl or heteroaryl;

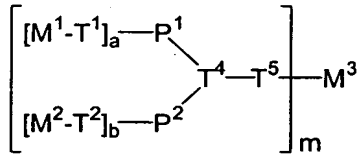
A is selected from an optionally substituted C_{1-10} alkylene, an optionally substituted C_{2-10} alkenylene, an optionally substituted C_{2-10} alkynylene, an optionally substituted C_{3-6} cycloalkylene, an optionally substituted C_{6-10} aryl, C=O, C=S, and C=NH, NH, O, S, NH_2, OH, SH, S(O), $S(O)_2$, amino acids, and spermidine; and

n is an integer selected from 1 to 20,

wherein when n is an integer greater than 1, each (A) group may be the same or different.

8. A compound according to claim 7, wherein each linker group independently comprises a group selected from $-NH-(CH_2)_n-NH_2-$, $-NH-CH_2CH_2CH_2-O-CH_2CH_2-O-CH_2CH_2-O-CH_2CH_2CH_2-NH_2$, $-NH-C(O)-CH_2CH_2-NH-C(O)-CH_2CH_2CH_2NH_2-$, $-S-(CH_2)_n-O-(CH_2)_n-S-$, or $-NH-(CH_2)_n-O-$, and $-C(O)-NH-CH_2-C(O)-NH-CH(CH_2SH)-C(O)-NH-$, where n is an integer from 1 to 20.

9. A compound of formula (3):



(3)

where

M^1, M^2, M^3 are the same or different and are each a metal coordination complex as defined for M^1 and M^2 of formula (1) in claim 1, wherein at least one of M^1, M^2 and M^3 is capable of interacting with a major groove or minor groove of a polynucleotide;

P^1 and P^2 are the same or different and are each a sequence selective pyrrole-imidazole polyamide as defined for formula (1) in claim 1;

T^1 and T^2 are the same or different and are each a linker group of formula (2) as defined for formula (1) in claim 1;

T^5 is a linker group of formula (2) as defined for T^1 and T^2 of formula (1) in claim 1, wherein one of Y^1 and Y^2 is bound to a metallocomplex M^3 and the other of Y^1 and Y^2 is covalently bound to T^4;

The claims defining the invention are as follows:

1. A compound of formula (1)

$$[M^1\text{-}T^1]_a\text{-}[P^1\text{-}T^2\text{-}M^2]_b\text{-}[T^3\text{-}P^2]_c \qquad (1)$$

or a salt thereof,

wherein

M^1 and M^2 are the same or different and are each a metal coordination complex, wherein at least one of M^1 and M^2 is capable of interacting with a major groove or minor groove of a polynucleotide;

P^1 and P^2 are the same or different and are each a sequence selective pyrrole-imidazole polyamide;

T^1, T^2 and T^3 are the same or different and are each a linker group;

a is 0, or 1;

b is an integer selected from 1, 2, 3, 4 and 5;

wherein when b is an integer greater than 1, each P^1, each T^2 and each M^2 may be the same or different; and

c is 0, 1 or 2; wherein when c is 2, each P^2 may be the same or different and each T^3 may be the same or different.

2. A compound according to claim 1, a = 0, b = 1, and c = 0.

3. A compound according to claim 1, wherein M^1 and M^2 are the same or different and are individually selected from a platinum complex, a palladium complex, a ruthenium complex, and a rhodium complex.

4. A compound according to claim 1, wherein M^1 and M^2 are independently selected from cis -$Pt(NH_3)_2Cl$ and trans -$Pt(NH_3)_2Cl$.

5. A compound according to claim 1, wherein each pyrrole-imidazole polyamides (P^1, P^2) independently comprises a plurality of heterocyclic rings selected from the group consisting of optionally substituted N-methylimidazole (Im), optionally substituted N-methylpyrrole (Py) and optionally substituted 3-hydroxy N-methylpyrrole (Hp).

6. A compound according to claim 5, wherein each pyrrole-imidazole polyamide independently comprises 3 heterocyclic rings or 4 heterocyclic rings.

7. A compound according to claim 1, wherein the linker groups (T^1, T^2, T^3) are the same or different and each has the formula (2):

$$-Y^1\text{-}(A)_n\text{-}Y^2\text{-} \qquad (2)$$

wherein

T^4 is a linker group of formula (2) as defined for T^1 and T^2 of formula (1) in claim 1, wherein Y^1 is covalently bound to a pyrrole-imidazole polyamide, Y^2 is covalently bound to a pyrrole-imidazole polyamide, and wherein one Y^1, Y^2 and A is covalently bound to T^5;

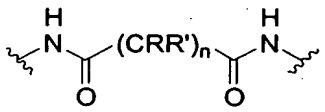
a and b are independently selected from 0 and 1; and

m is 1, 2, 3 or 4.

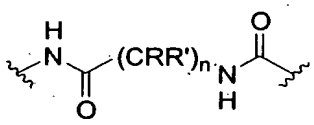
10. A compound according to claim 9, wherein m is 1 or 2.

11. A compound according to claim 9, wherein a = 0, b = 1, and m = 1.

12. A compound according to claim 9, wherein T^4 comprises



or

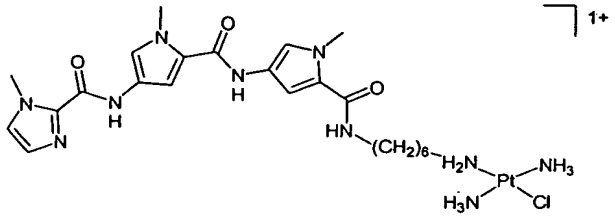


wherein n is an integer selected from 1, 2, 3, 4, 5, 6, 7, 8, 9 and 10,

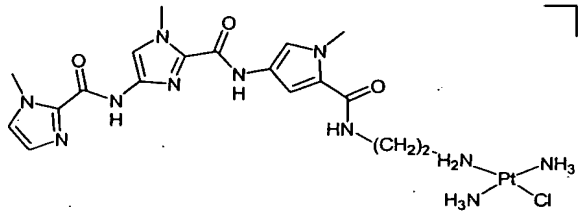
each (CRR') is independently an optionally substituted alkylene; and

wherein in one (CRR'), R' is absent and CR is covalently bound to T^5.

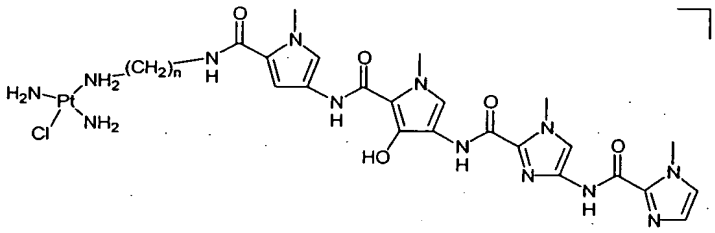
13. A compound according to claim 1, wherein said compound is selected from



"trans-Im/Py/Py-[CONH$(CH_2)_6$-NH_2)Pt$(NH_3)_2$Cl";



"trans-Im/Py/Py-[CONH$(CH_2)_2$-NH_2)Pt$(NH_3)_2$Cl";



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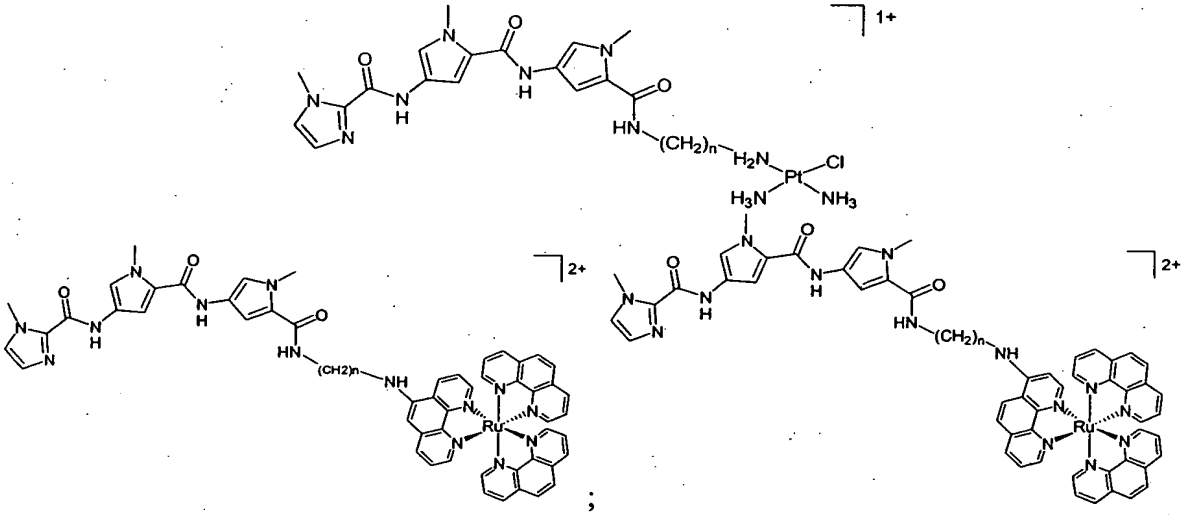

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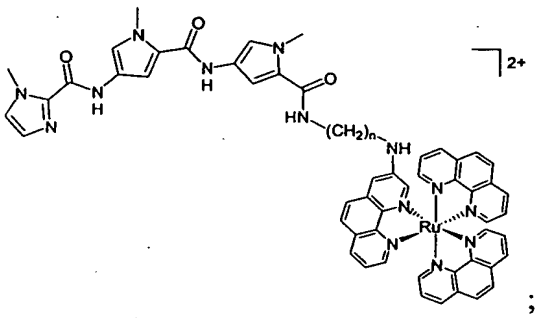
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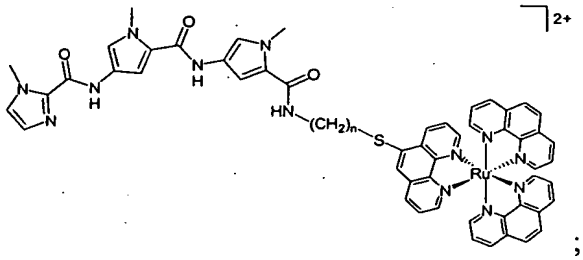
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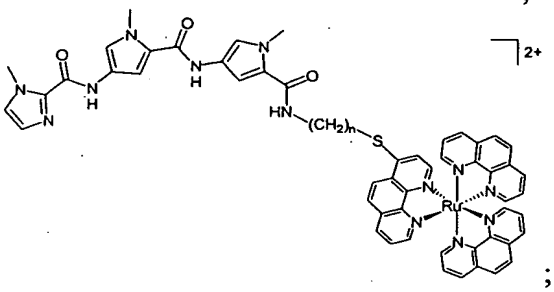
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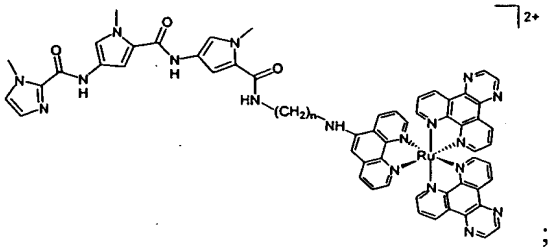
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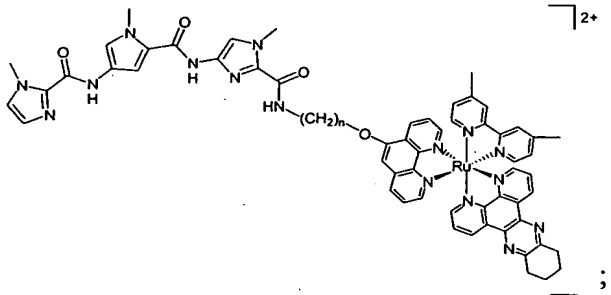
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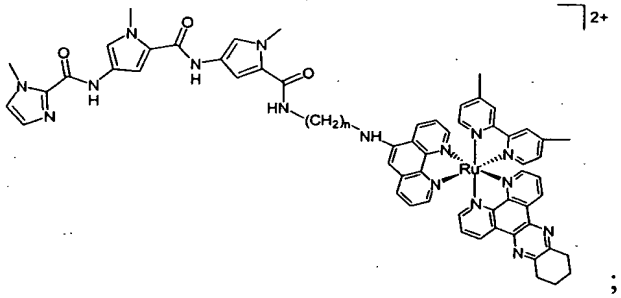
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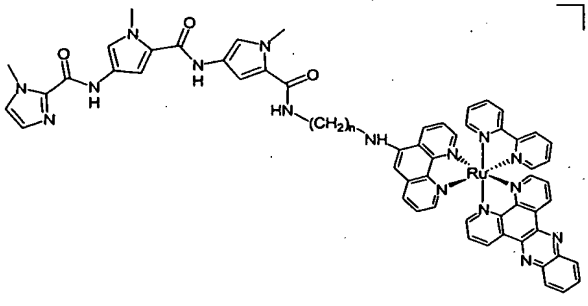
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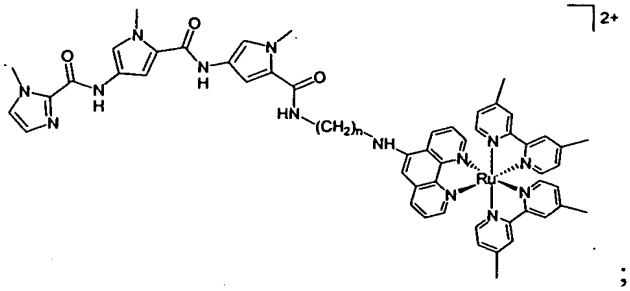

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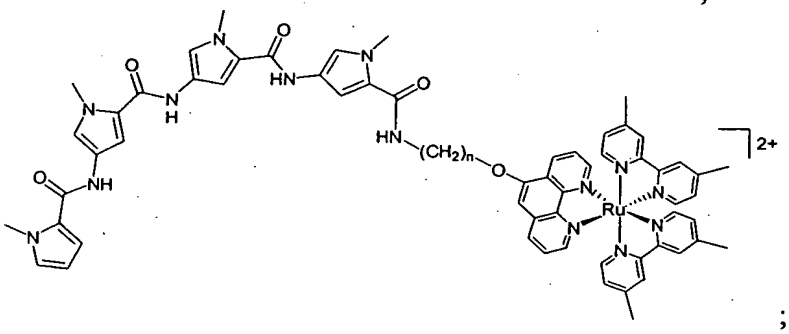

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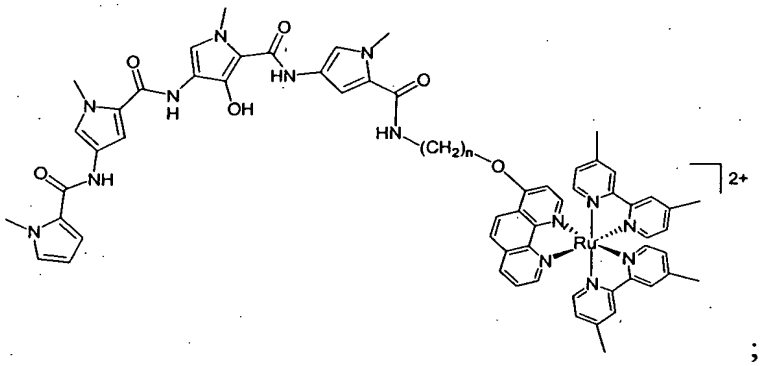

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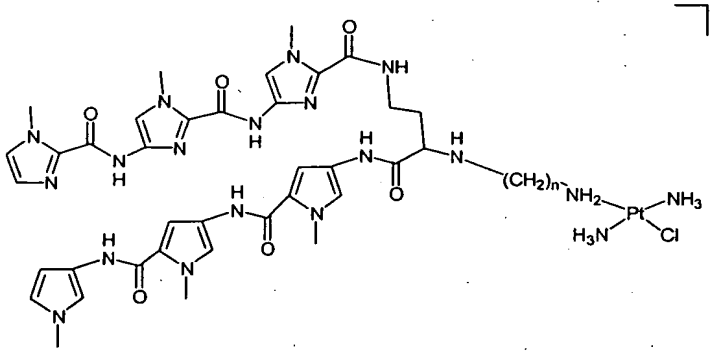
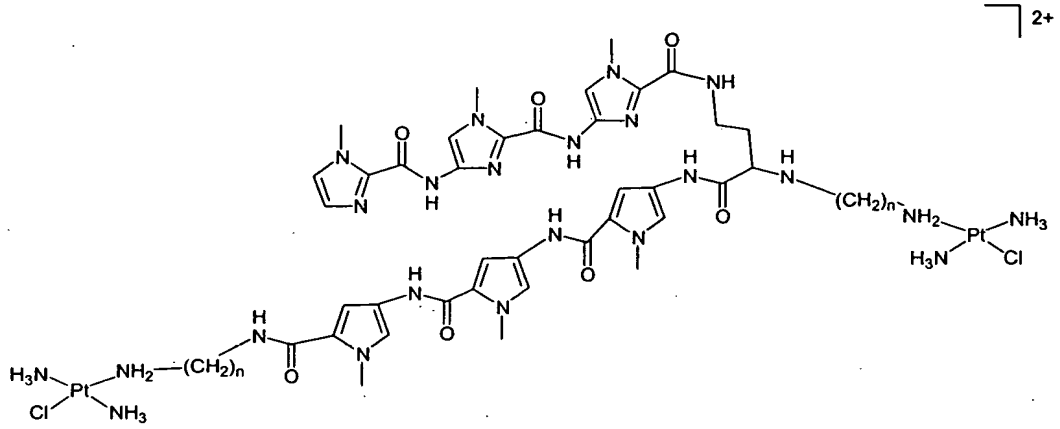
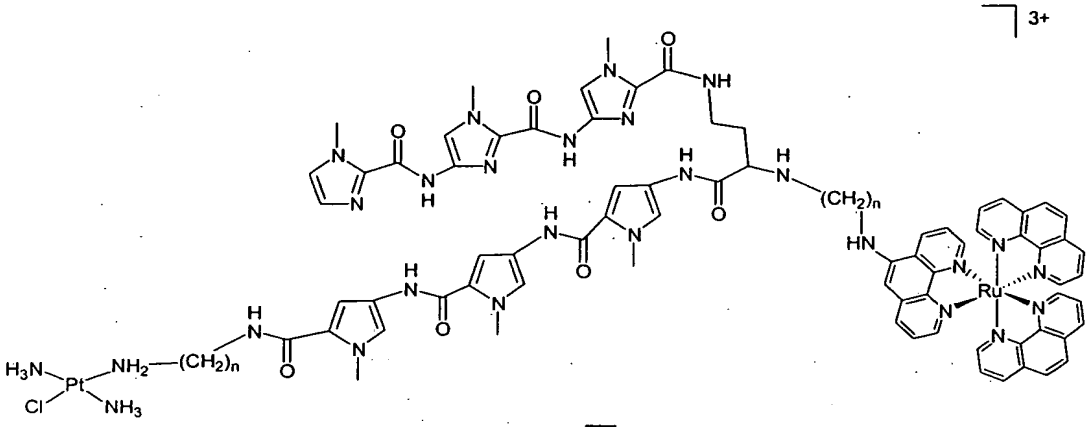
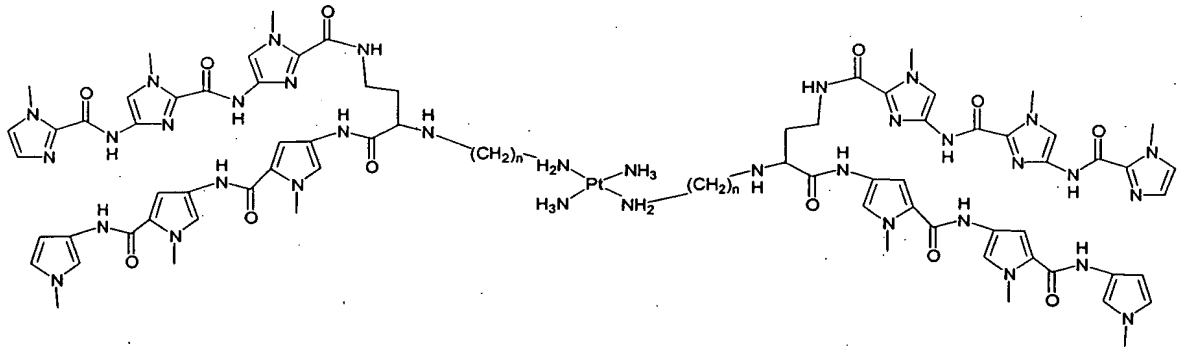
where n is an integer selected from 1, 2, 3, 4, 5, 6, 7, 8, 9 and 10, or a salt thereof.

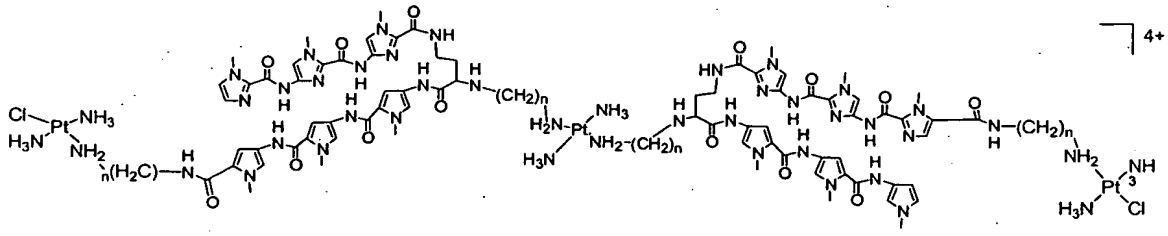
14. A compound according to claim 9, wherein said compound is selected from











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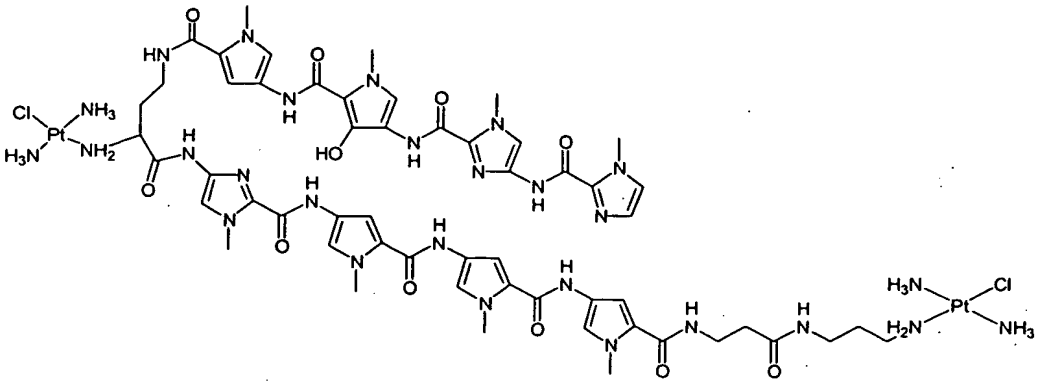
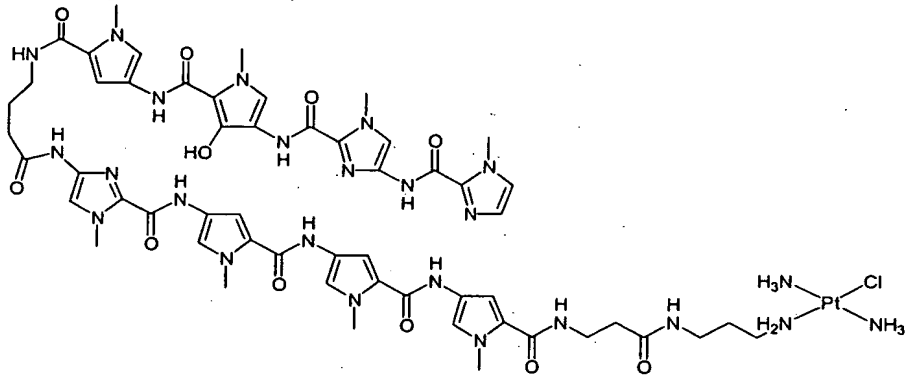
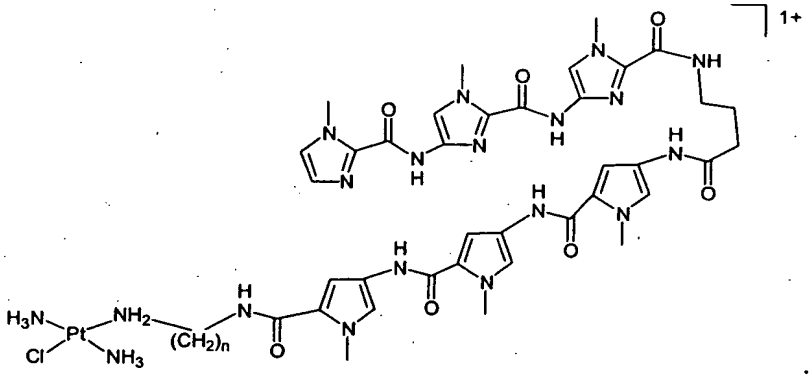


where each n is an integer independently selected from 1, 2, 3, 4, 5, 6, 7, 8, 9 and 10, or a salt thereof.

15. A compound selected from



and



where each n is an integer independently selected from 1, 2, 3, 4, 5, 6, 7, 8, 9 and 10, or a salt thereof.

16. A pharmaceutical composition comprising at least one compound selected from a compound of formula (1) according claim 1, a compound of formula (3) according to claim 9, and a compound according to claim 15, together with a pharmaceutically acceptable diluent, adjuvant or carrier.

17. A method of targeting a therapeutic agent(s) and/or a reporter group(s) to a sequence in a polynucleotide comprising contacting biological material suspected of containing said sequence with a compound of formula (1), formula (3) or claim 15.

18. A method of treating a disease selected from cancer, HIV and Hepatitis C, said method comprising administering to a mammal in need of such treatment a therapeutically effective amount of at least one compound according to claim 1, claim 9 or claim 15, or a pharmaceutical composition according to claim 16.

19. A method of diagnosis comprising contacting a biological sample with a diagnostically effective amount of at least one compound according to claim 1, claim 9 or claim 15, or a pharmaceutical composition according to claim 16.

Dated 22 December, 2005
University of Western Sydney

Patent Attorneys for the Applicant/Nominated Person
SPRUSON & FERGUSON

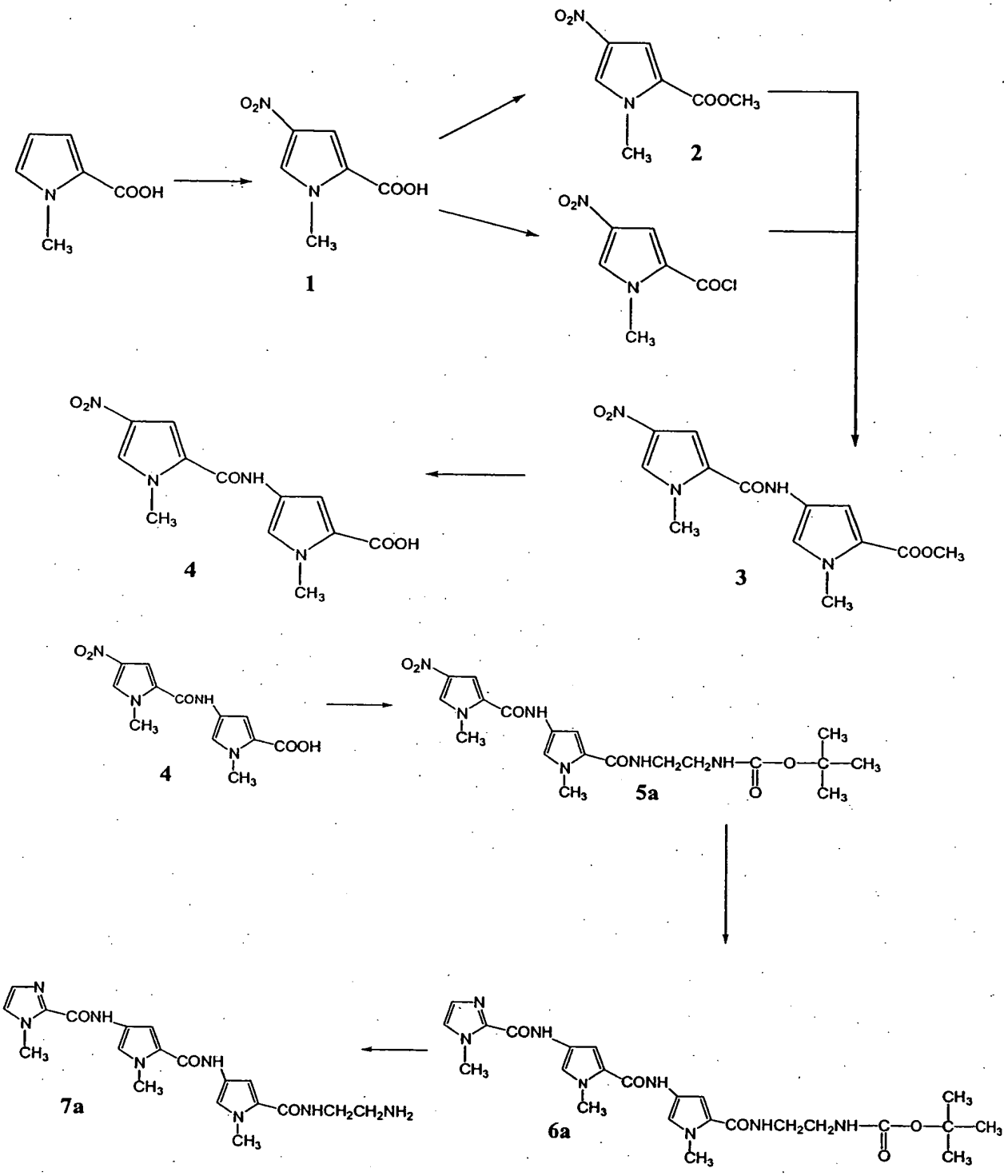
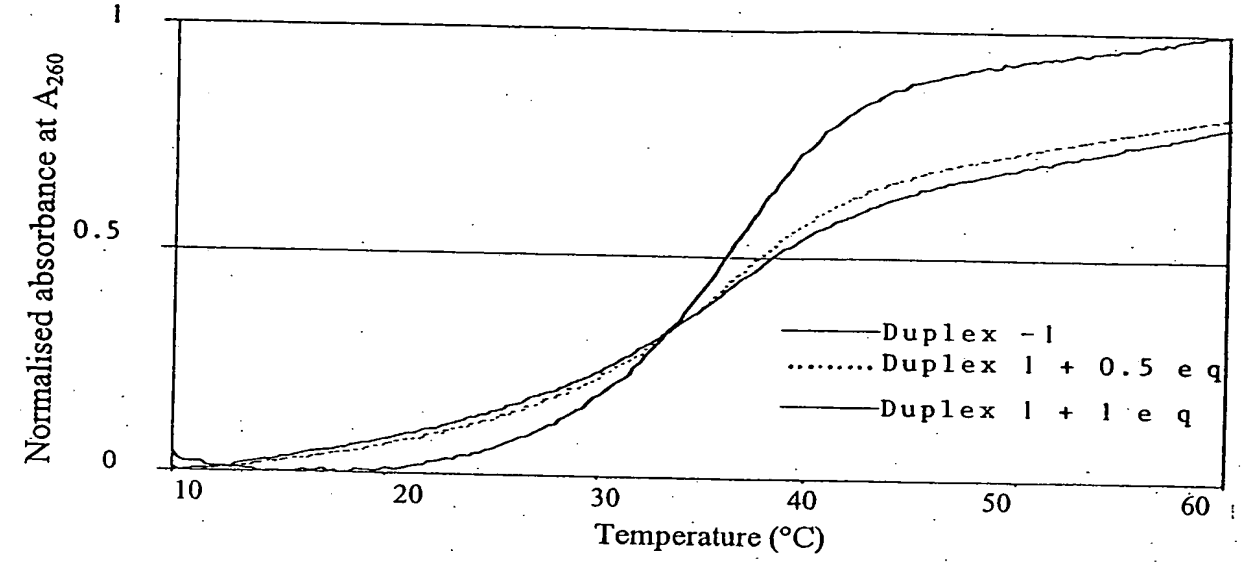
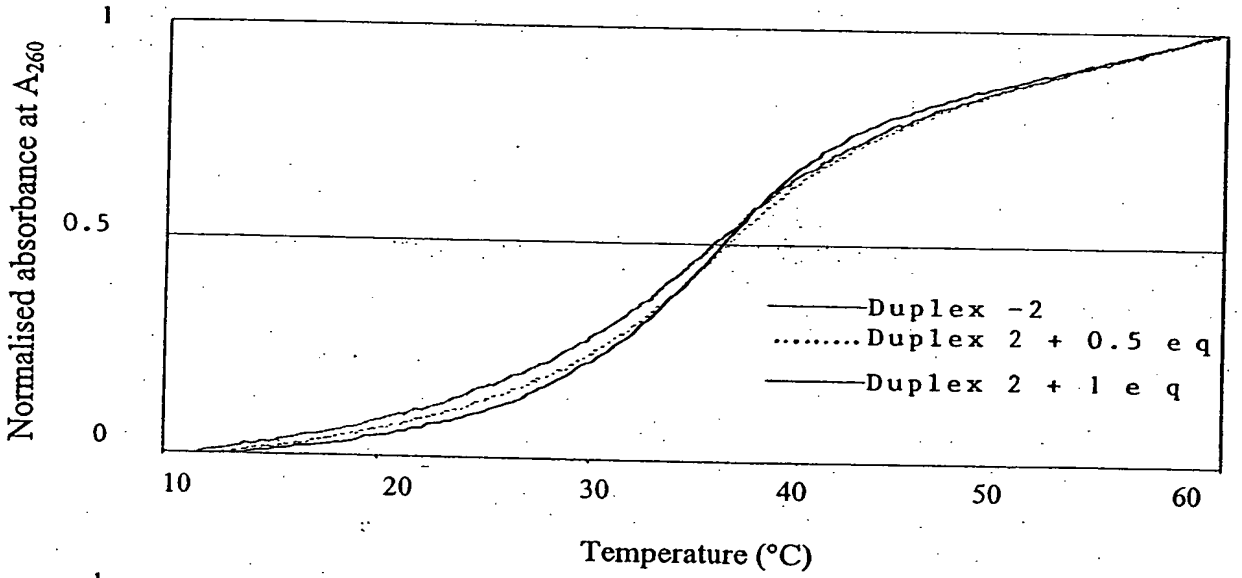

O2N
COOH
N
CH3
1
COOCH3
2
COCl
3
CONH
4
5a
CONHCH2CH2NH
O
6a
7a
CONHCH2CH2NH2

Figure 1


Normalised absorbance at A_{260}
1
0.5
0
10
20
30
40
50
60
Temperature (°C)
Duplex -1
Duplex 1 + 0.5 eq
Duplex 1 + 1 eq


Normalised absorbance at A_{260}
1
0.5
0
10
20
30
40
50
60
Temperature (°C)
Duplex -2
Duplex 2 + 0.5 eq
Duplex 2 + 1 eq

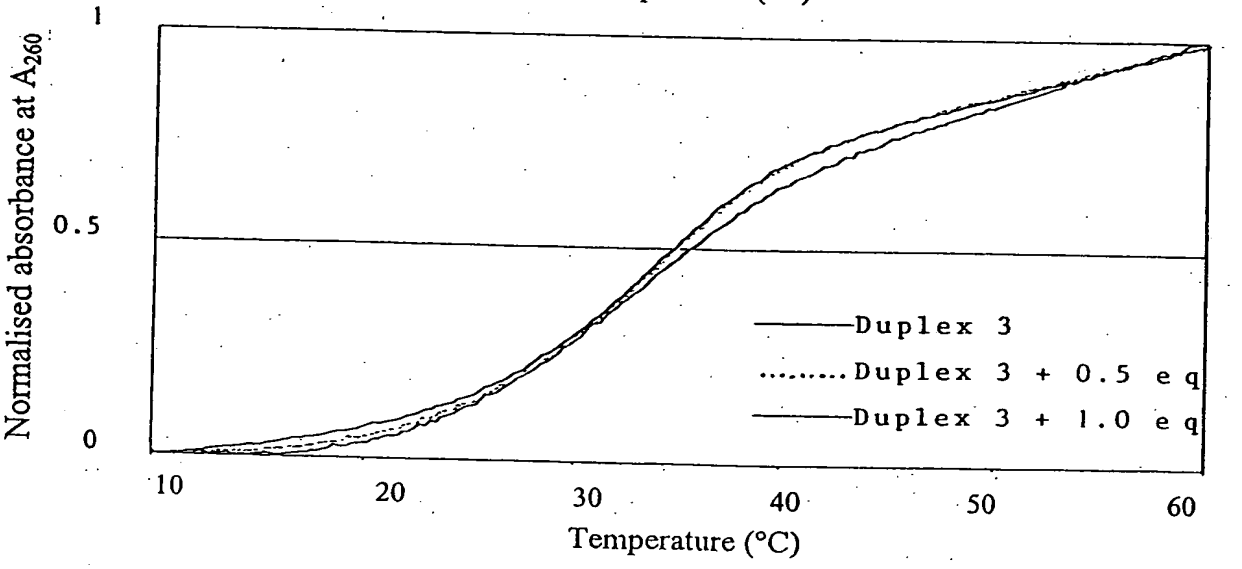

Normalised absorbance at A_{260}
1
0.5
0
10
20
30
40
50
60
Temperature (°C)
Duplex 3
Duplex 3 + 0.5 eq
Duplex 3 + 1.0 eq

Figure 2

CD titration Spectra

ICD titration Spectra

DJ1953-2 trans-Im/Py/Py-[CONH(CH_2)$_2$-NH_2)Pt(NH_3)$_2$Cl

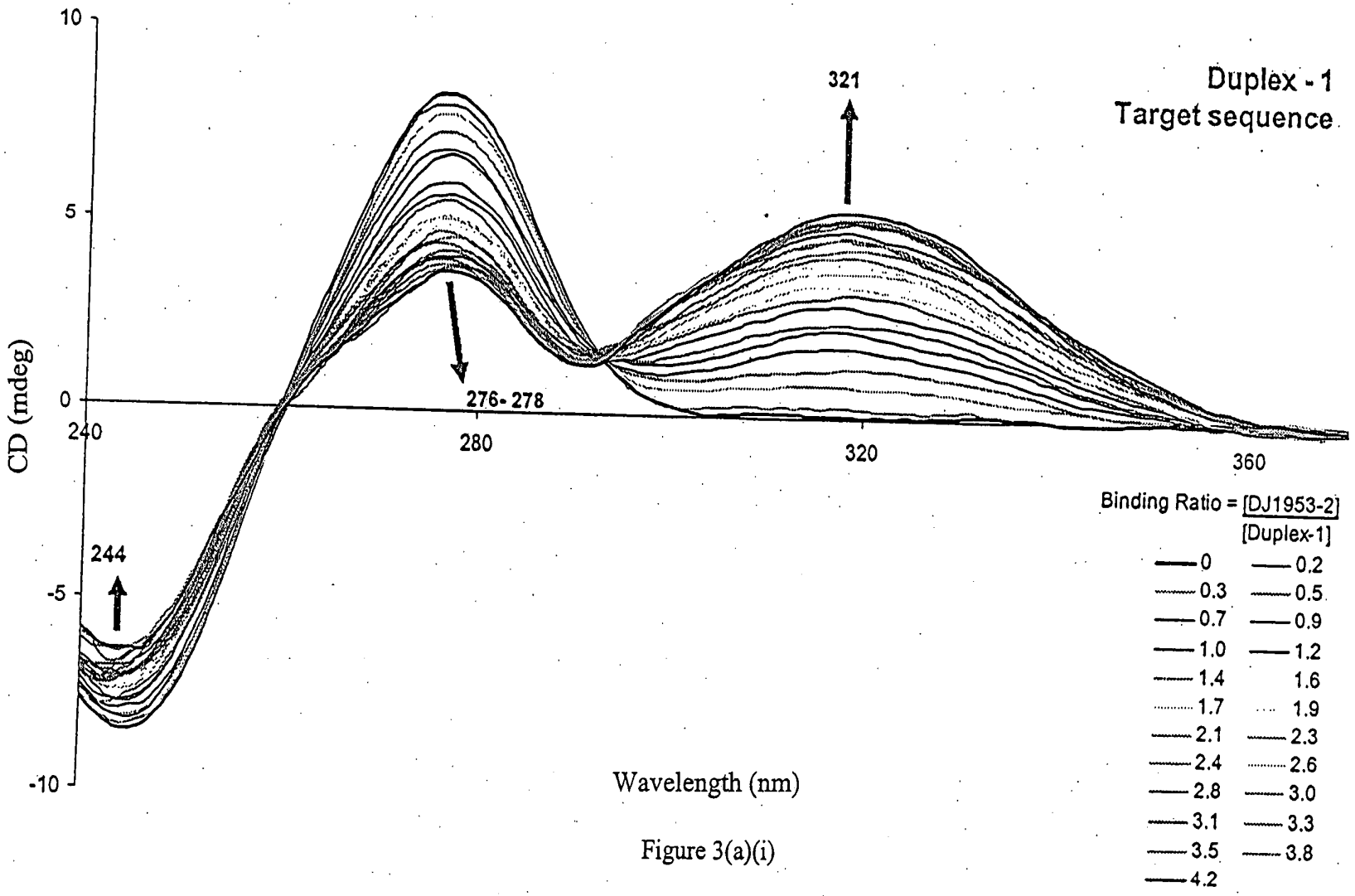


Figure 3(a)(i)

PCT/AU2004/001368
Received 14 December 2004

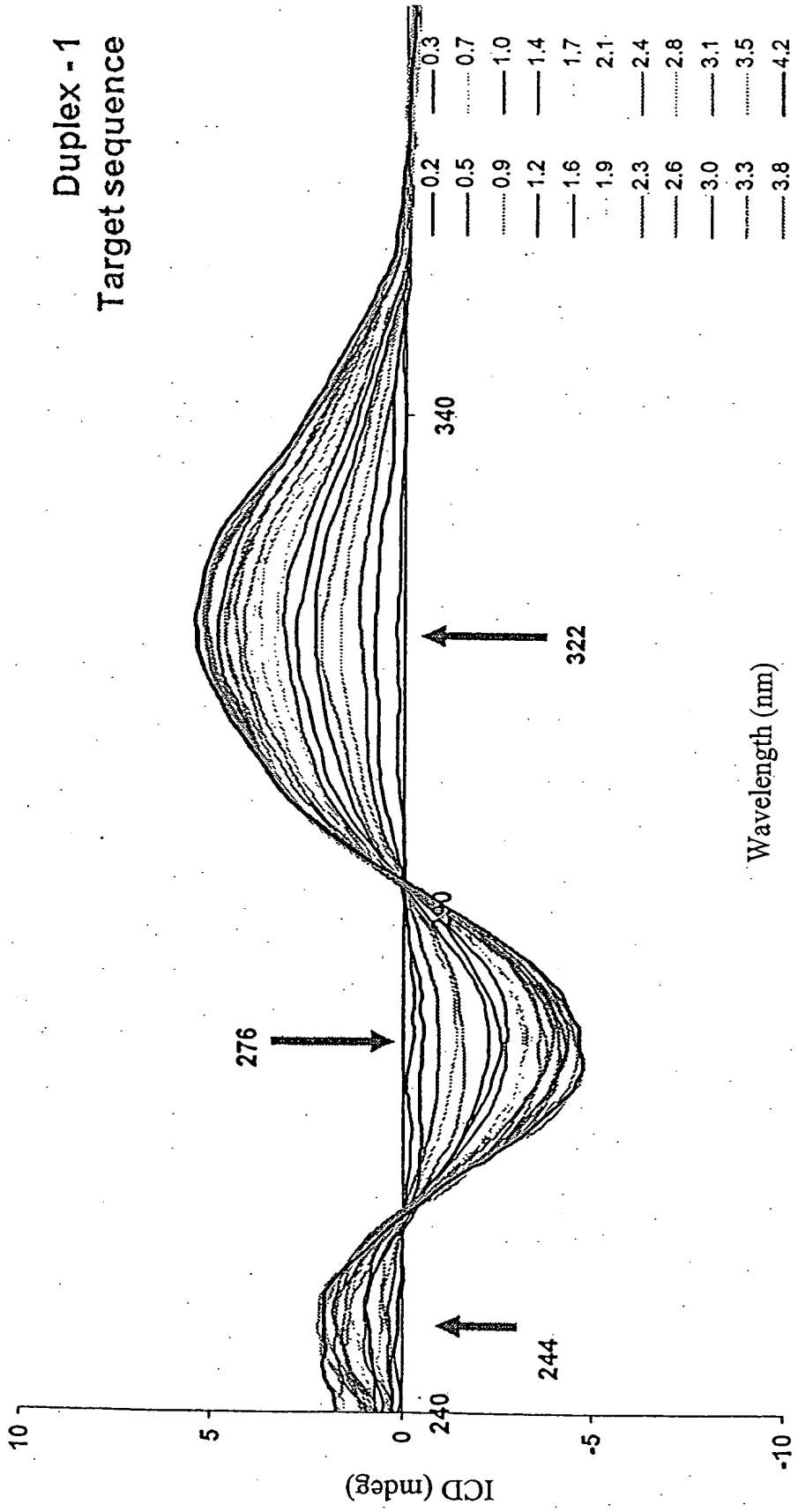

Duplex - 1
Target sequence
0.2
0.3
0.5
0.7
0.9
1.0
1.2
1.4
1.6
1.7
1.9
2.1
2.3
2.4
2.6
2.8
3.0
3.1
3.3
3.5
3.8
4.2
340
322
276
244
240
10
5
0
-5
-10
ICD (mdeg)
Wavelength (nm)

Figure 3(a)(ii)

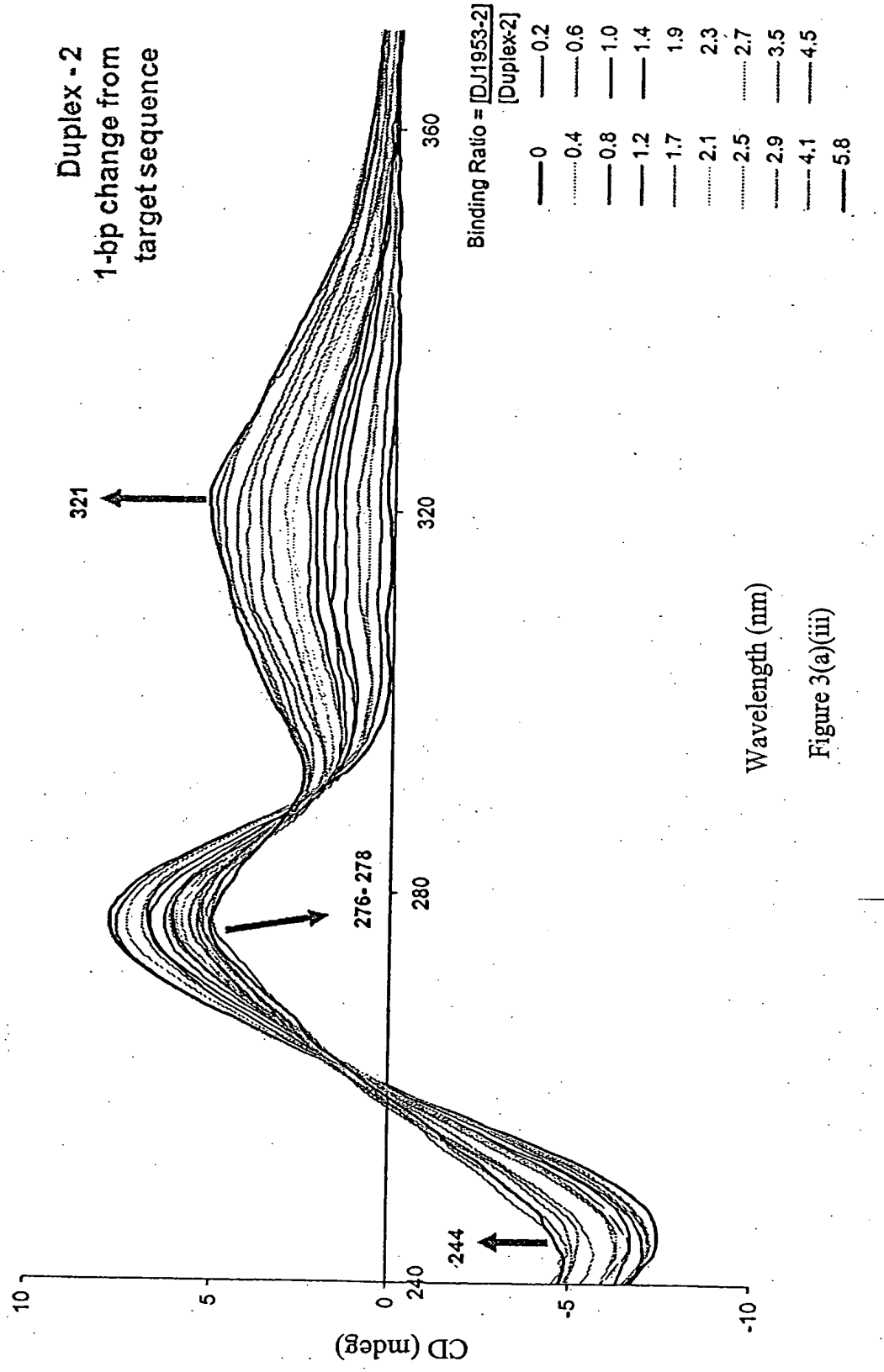


Figure 3(a)(iii)

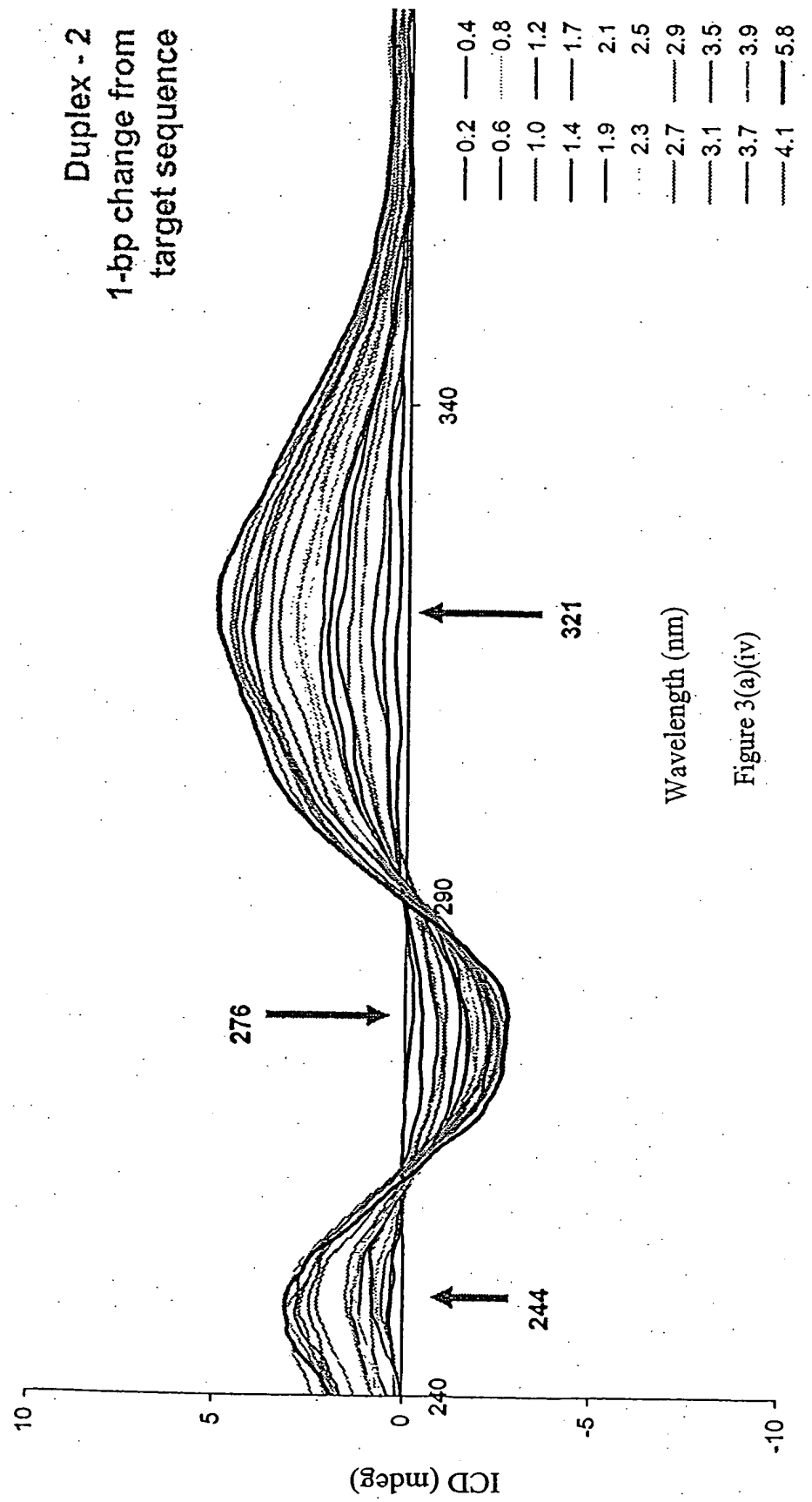

Duplex - 2
1-bp change from
target sequence
0.2
0.4
0.6
0.8
1.0
1.2
1.4
1.7
1.9
2.1
2.3
2.5
2.7
2.9
3.1
3.5
3.7
3.9
4.1
5.8
340
321
290
276
244
240
10
5
0
-5
-10
ICD (mdeg)
Wavelength (nm)

Figure 3(a)(iv)

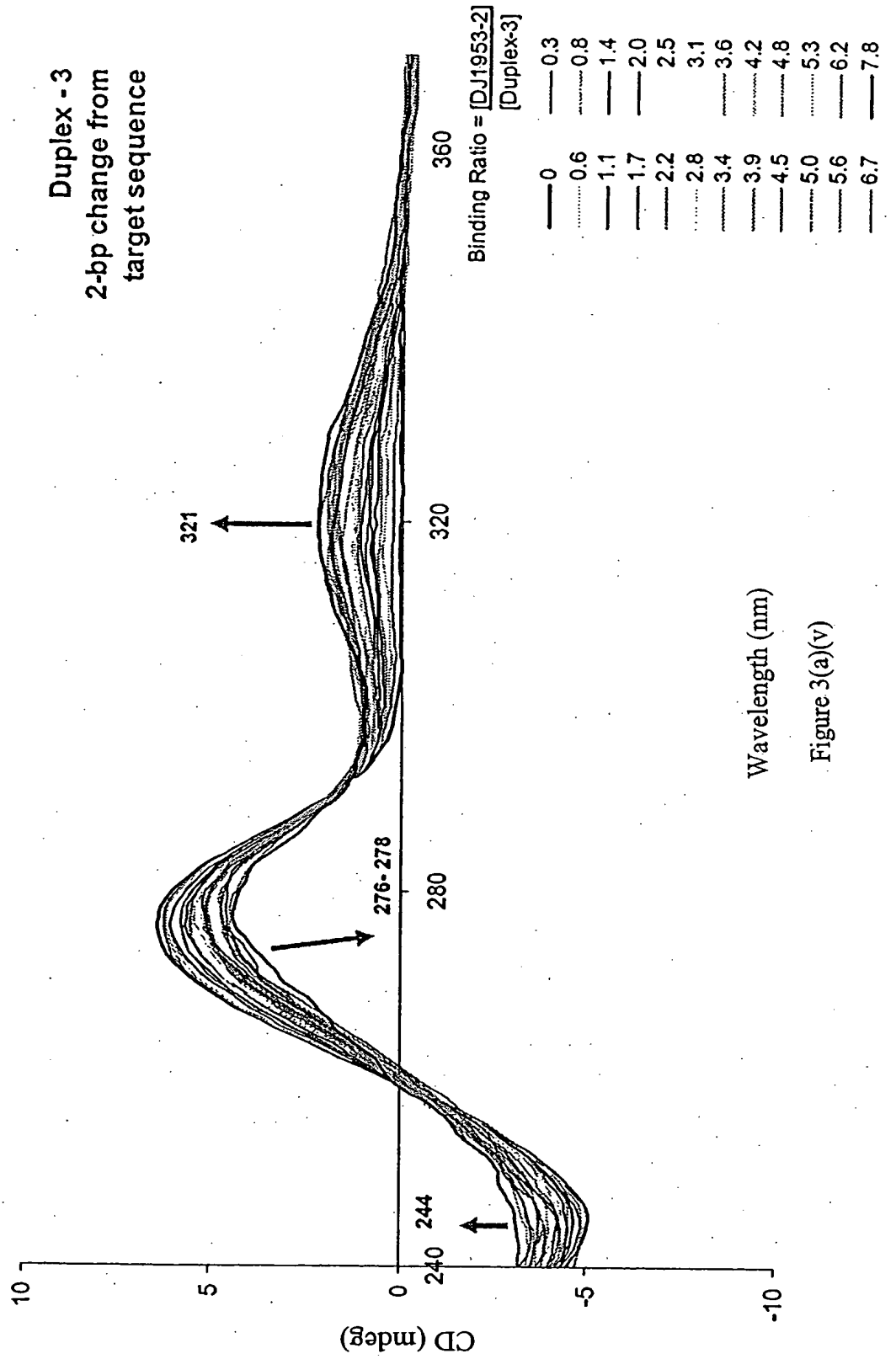

Duplex - 3
2-bp change from
target sequence
Binding Ratio = [DJ1953-2]
[Duplex-3]
0
0.3
0.6
0.8
1.1
1.4
1.7
2.0
2.2
2.5
2.8
3.1
3.4
3.6
3.9
4.2
4.5
4.8
5.0
5.3
5.6
6.2
6.7
321
276- 278
244
240
360
320
280
10
5
0
-5
-10
CD (mdeg)
Wavelength (nm)

Figure 3(a)(v)

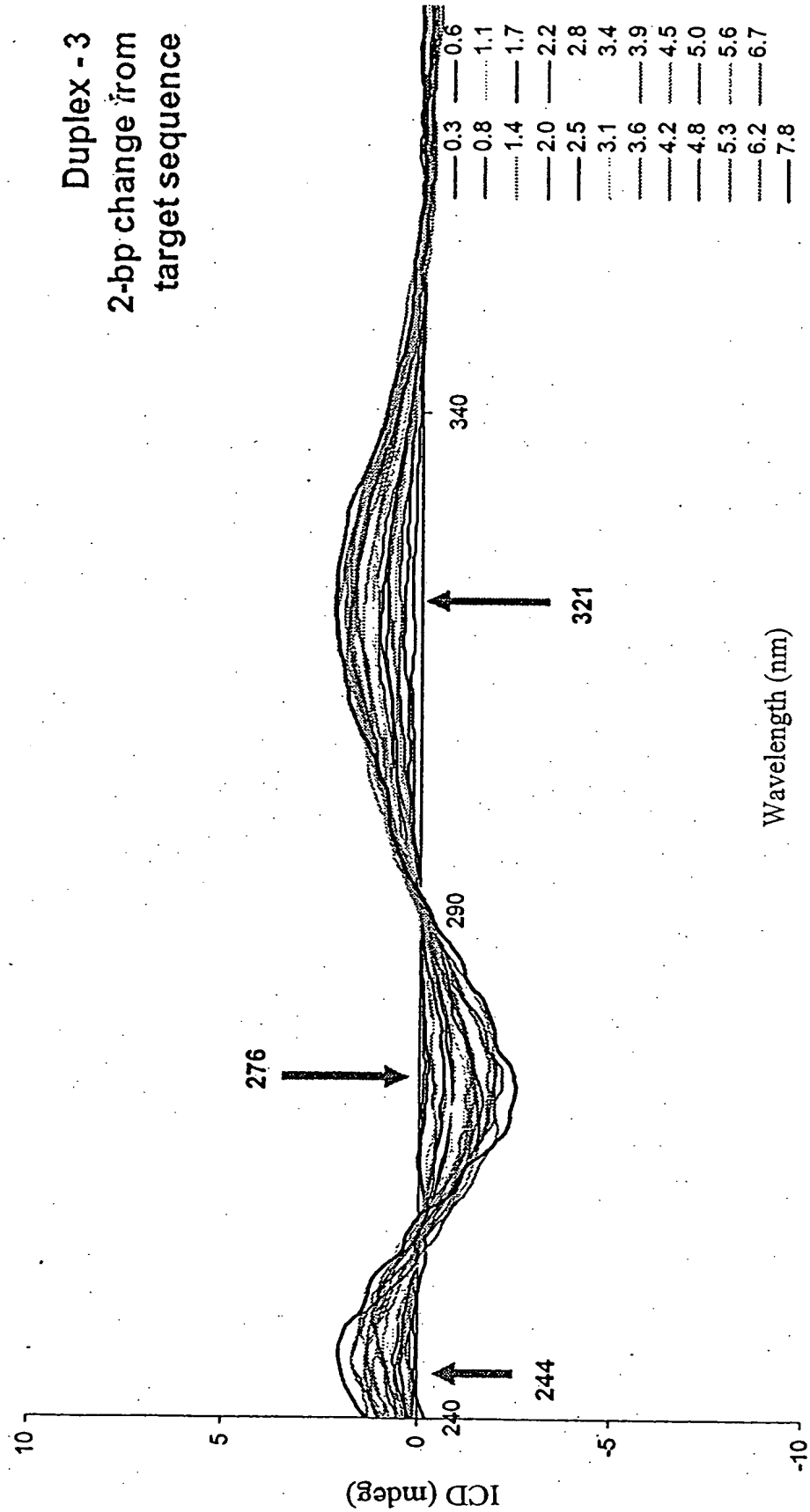

Duplex - 3
2-bp change from
target sequence
0.3
0.6
0.8
1.1
1.4
1.7
2.0
2.2
2.5
2.8
3.1
3.4
3.6
3.9
4.2
4.5
4.8
5.0
5.3
5.6
6.2
6.7
7.8
340
321
290
276
244
240
10
5
0
-5
-10
ICD (mdeg)
Wavelength (nm)

Figure 3(a)(vi)

trans-Im/Py/Py-[CONH(CH$_2$)$_6$-NH$_2$)Pt(NH$_3$)$_2$Cl

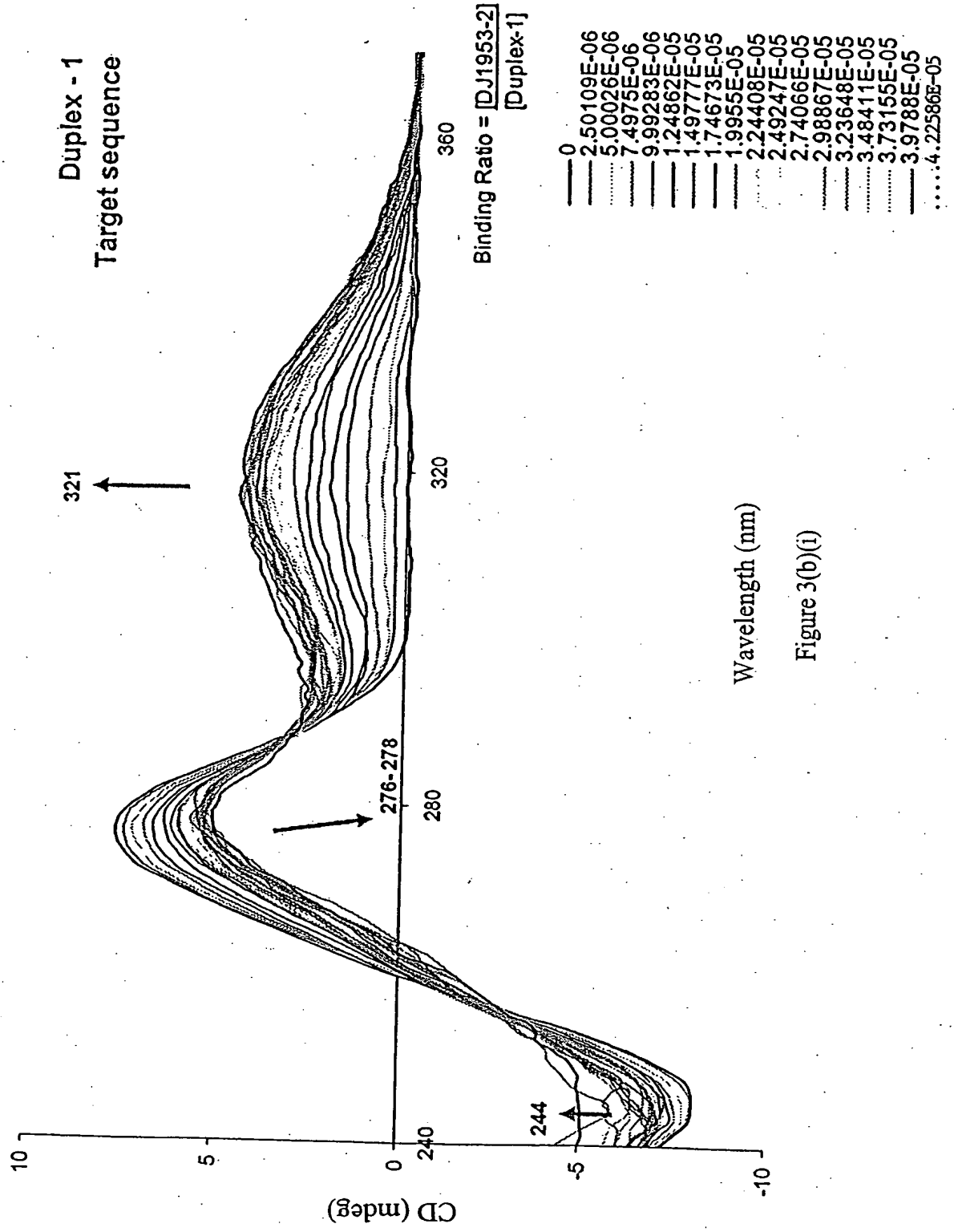


Figure 3(b)(i)

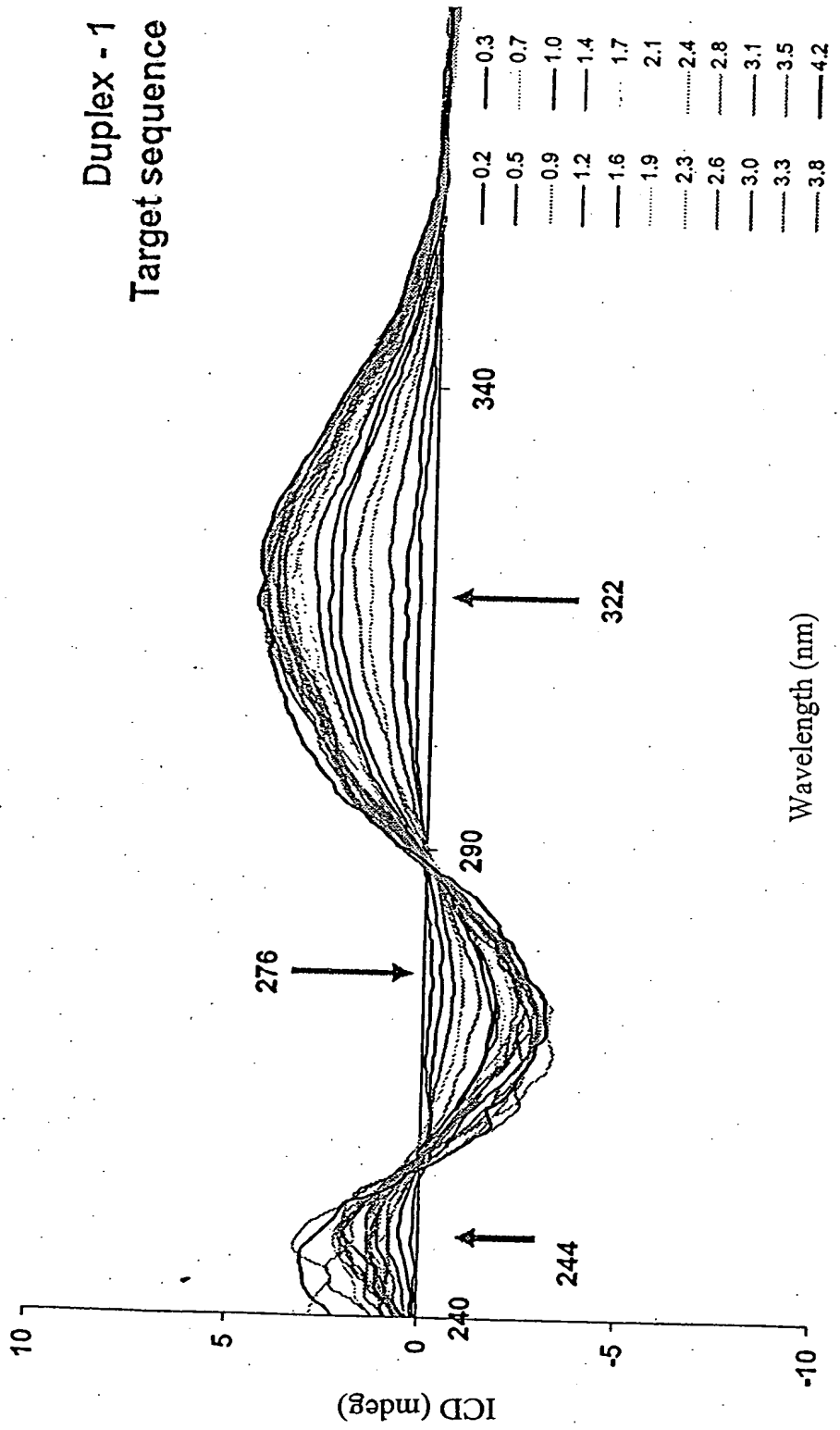

Duplex - 1
Target sequence
0.2
0.3
0.5
0.7
0.9
1.0
1.2
1.4
1.6
1.7
1.9
2.1
2.3
2.4
2.6
2.8
3.0
3.1
3.3
3.5
3.8
4.2
340
322
290
276
244
240
10
5
0
-5
-10
ICD (mdeg)
Wavelength (nm)

Figure 3(b)(ii)

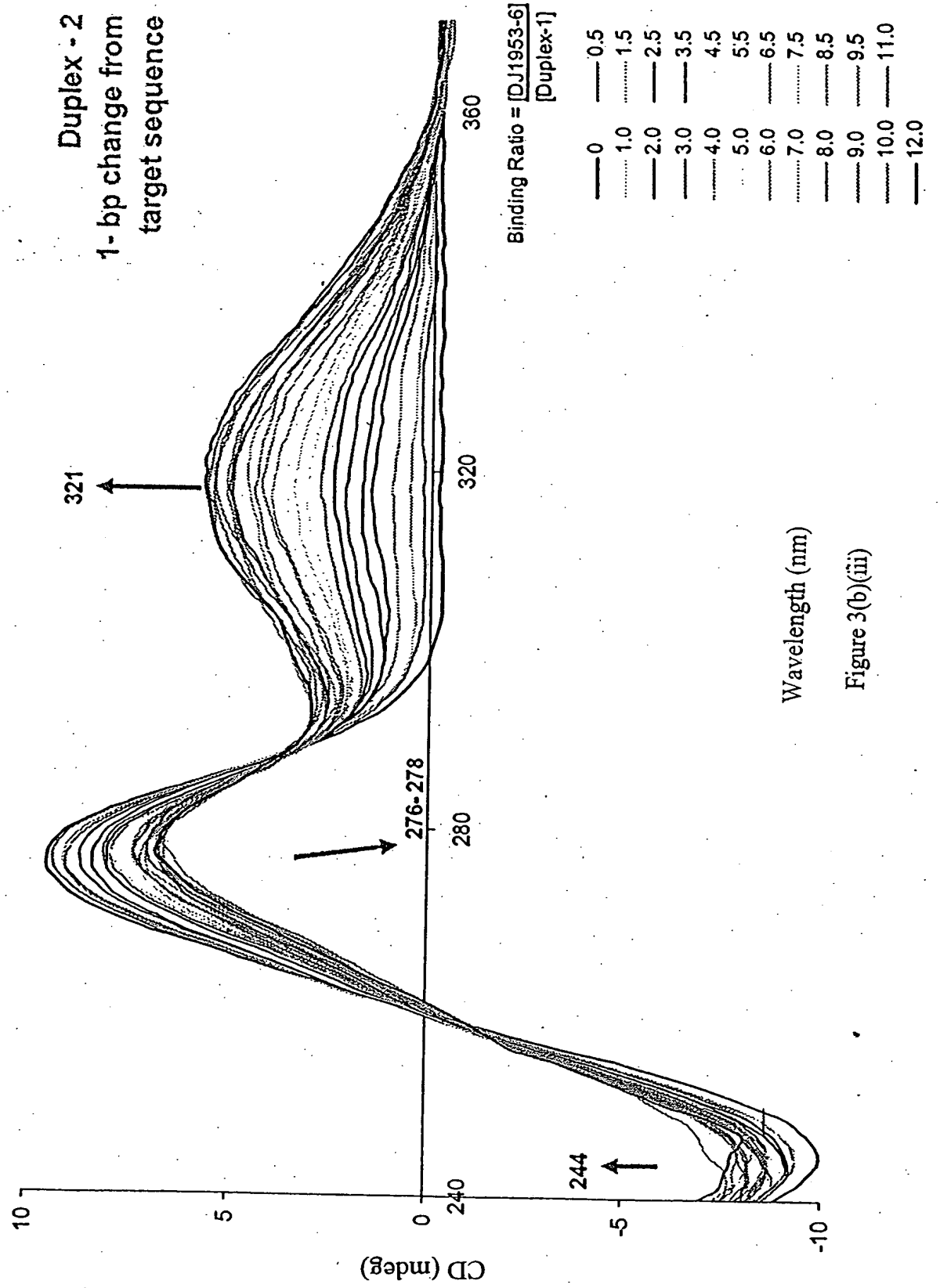


Figure 3(b)(iii)

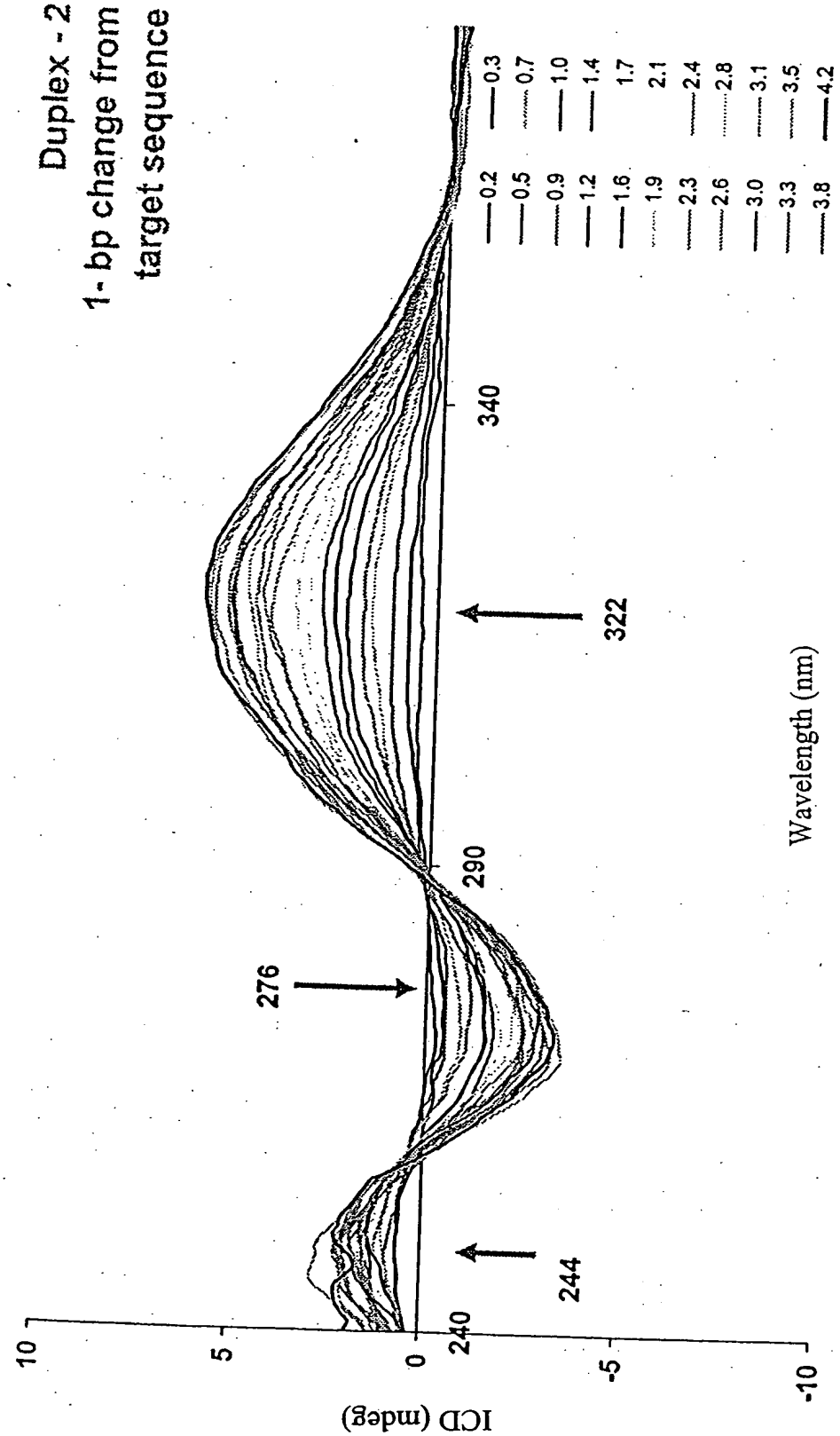

Duplex - 2
1- bp change from
target sequence
0.2
0.3
0.5
0.7
0.9
1.0
1.2
1.4
1.6
1.7
1.9
2.1
2.3
2.4
2.6
2.8
3.0
3.1
3.3
3.5
3.8
4.2
340
322
290
276
244
240
10
5
0
-5
-10
ICD (mdeg)
Wavelength (nm)

Figure 3(b)(iv)

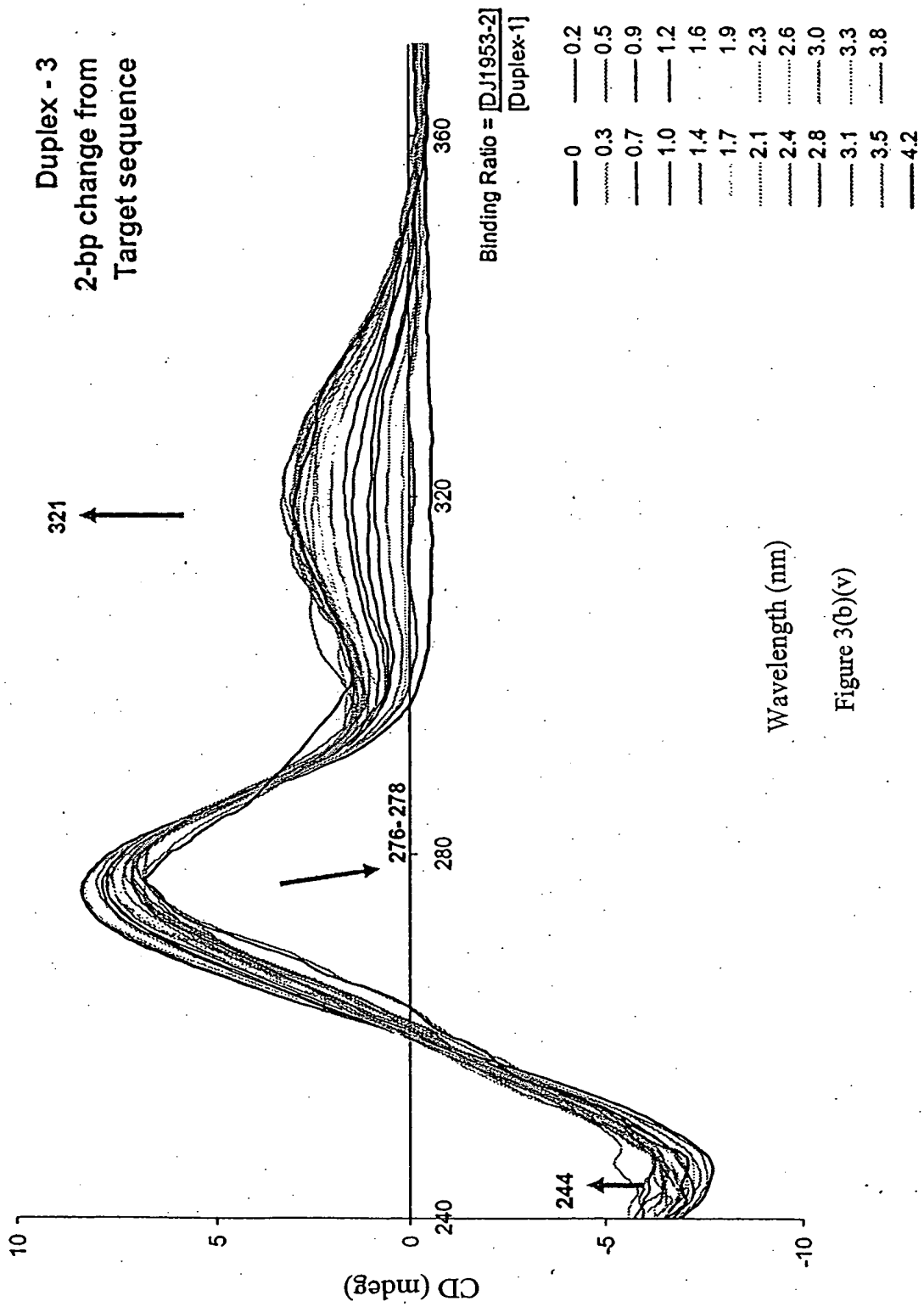

Duplex - 3
2-bp change from
Target sequence
321
276-278
244
Binding Ratio = [DJ1953-2]/[Duplex-1]
0
0.2
0.3
0.5
0.7
0.9
1.0
1.2
1.4
1.6
1.7
1.9
2.1
2.3
2.4
2.6
2.8
3.0
3.1
3.3
3.5
3.8
4.2
CD (mdeg)
10
5
0
-5
-10
240
280
320
360
Wavelength (nm)

Figure 3(b)(v)

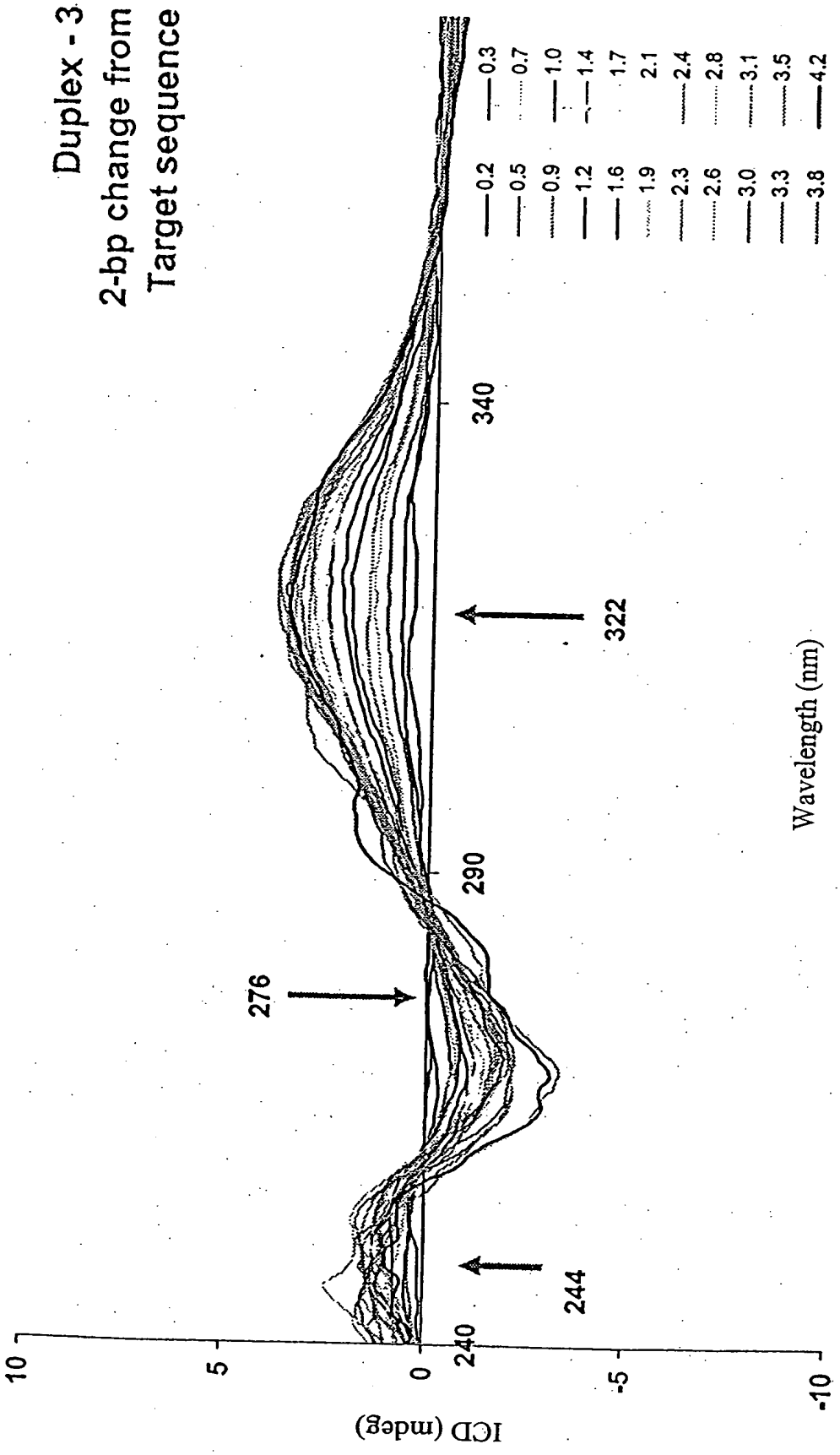

Duplex - 3
2-bp change from
Target sequence
0.2
0.3
0.5
0.7
0.9
1.0
1.2
1.4
1.6
1.7
1.9
2.1
2.3
2.4
2.6
2.8
3.0
3.1
3.3
3.5
3.8
4.2
340
322
290
276
244
240
10
5
0
-5
-10
ICD (mdeg)
Wavelength (nm)

Figure 3(b)(vi)

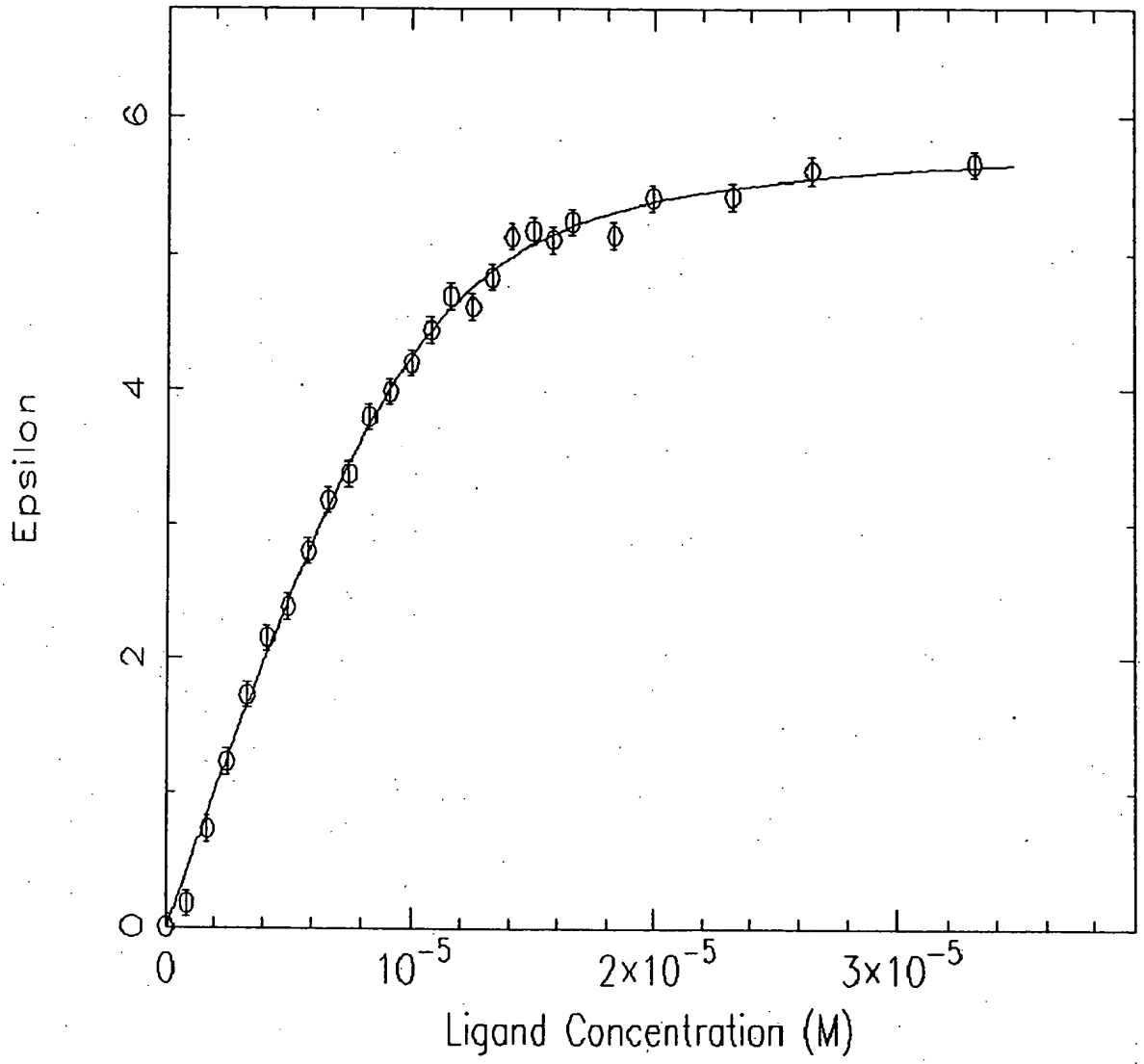

Epsilon
0
2
4
6
0
10^{-5}
2×10^{-5}
3×10^{-5}
Ligand Concentration (M)

Figure 3c

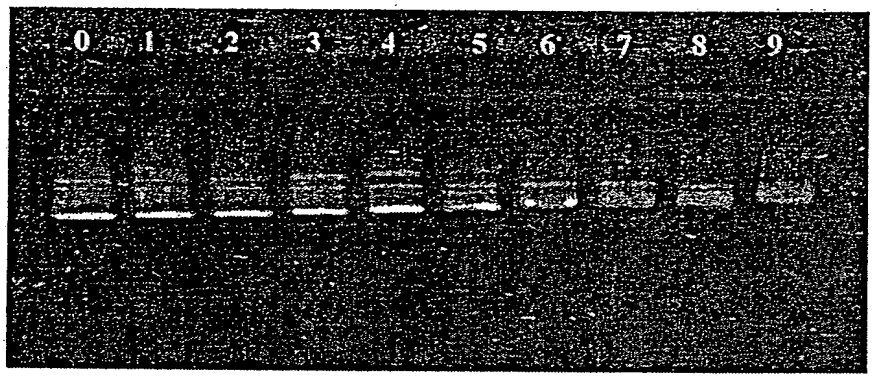


Figure 4

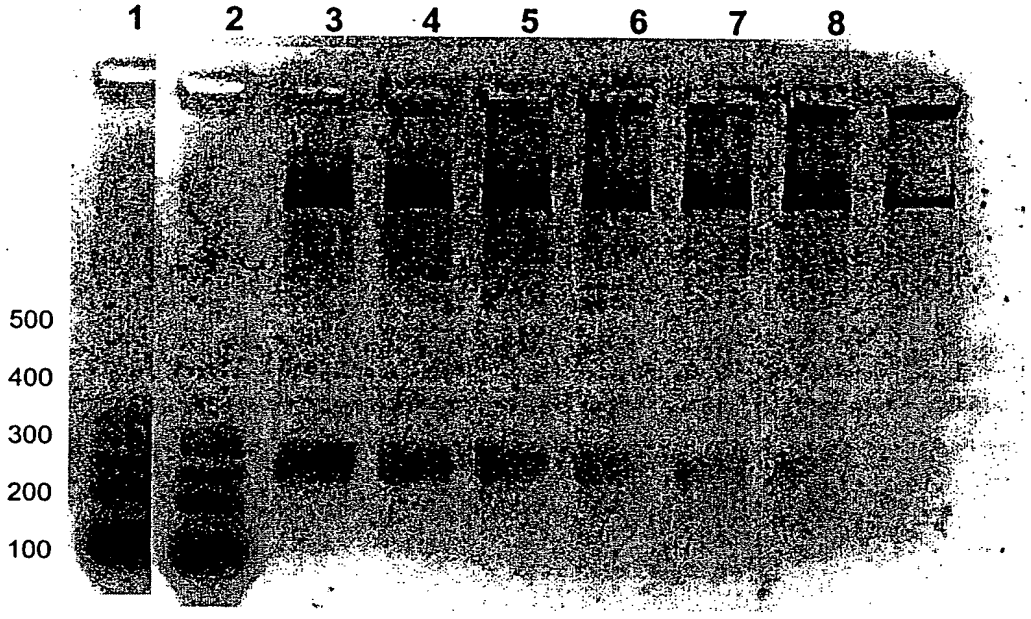


Figure 5

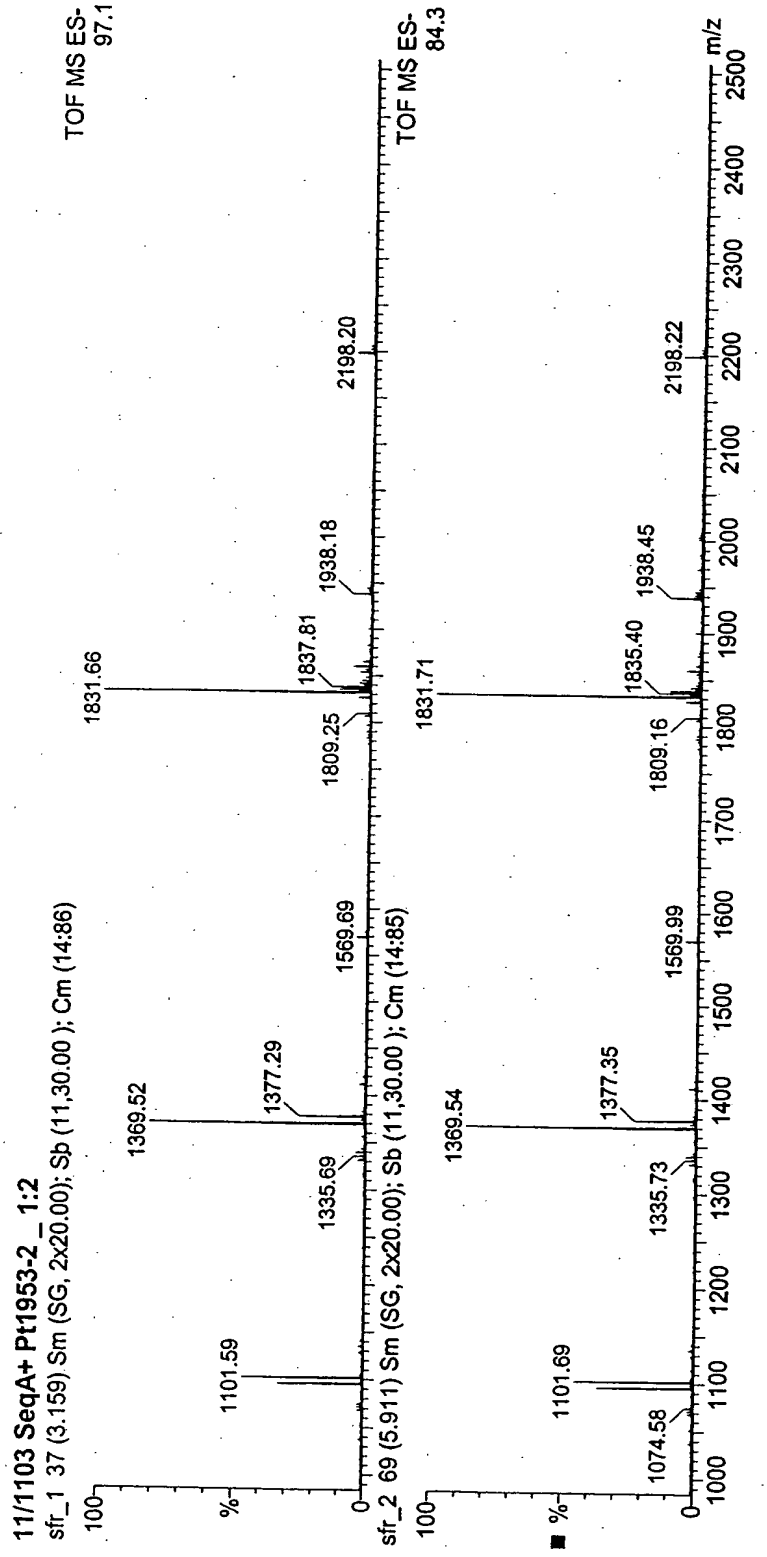

11/1103 SeqA+ Pt1953-2_ 1:2
sfr_1 37 (3.159) Sm (SG, 2x20.00); Sb (11,30.00); Cm (14:86)
TOF MS ES-
97.1
100
%
0
1101.59
1335.69
1369.52
1377.29
1569.69
1809.25
1831.66
1837.81
1938.18
2198.20
sfr_2 69 (5.911) Sm (SG, 2x20.00); Sb (11,30.00); Cm (14:85)
TOF MS ES-
84.3
100
%
0
1074.58
1101.69
1335.73
1369.54
1377.35
1569.99
1809.16
1831.71
1835.40
1938.45
2198.22
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000
2100
2200
2300
2400
2500
m/z

Figure 6

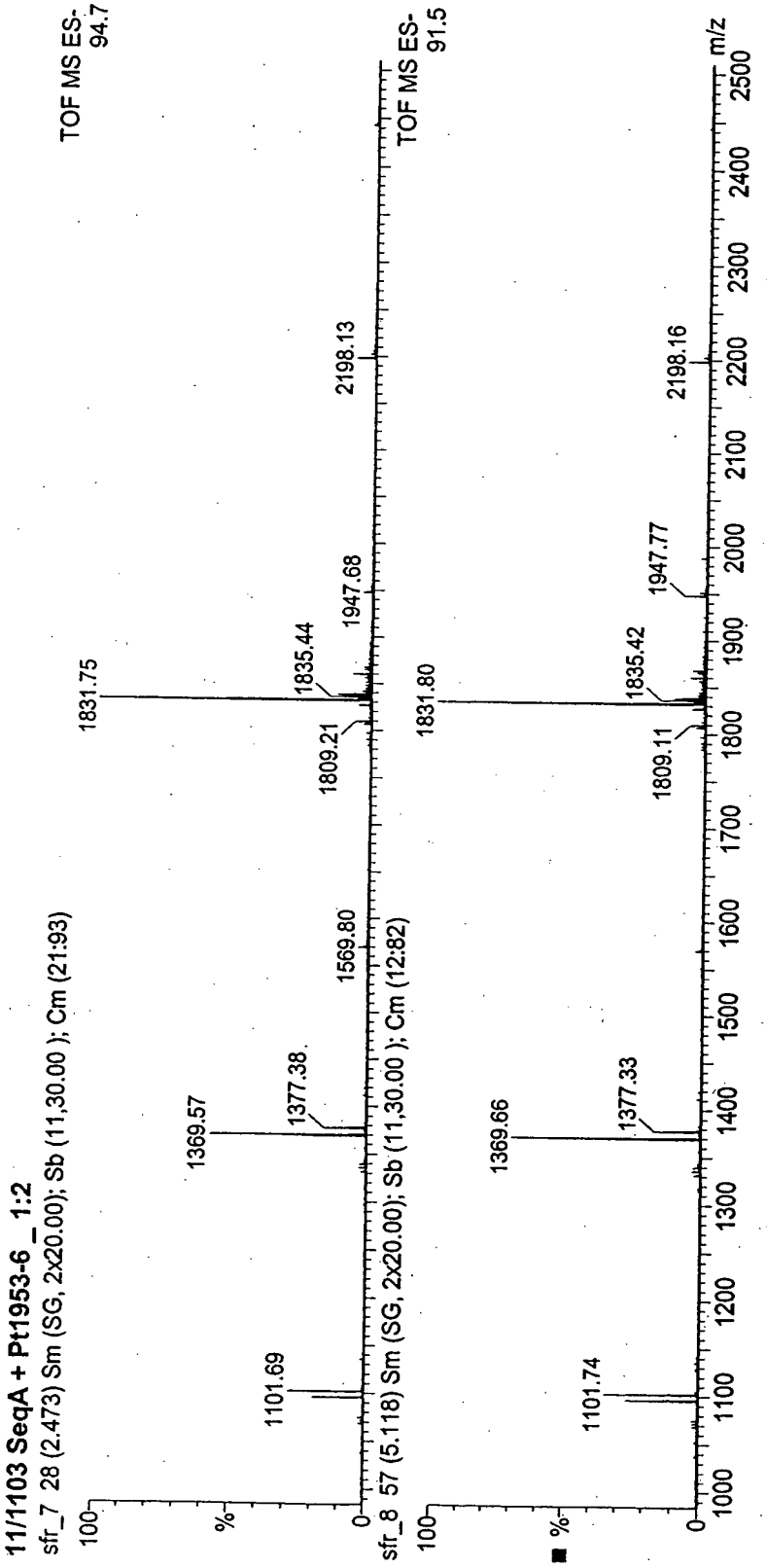

11/1103 SeqA + Pt1953-6_ 1:2
sfr_7 28 (2.473) Sm (SG, 2x20.00); Sb (11,30.00); Cm (21:93)
TOF MS ES-
94.7
1831.75
1835.44
1947.68
2198.13
1809.21
1569.80
1377.38
1369.57
1101.69
sfr_8 57 (5.118) Sm (SG, 2x20.00); Sb (11,30.00); Cm (12:82)
TOF MS ES-
91.5
1831.80
1835.42
1947.77
2198.16
1809.11
1377.33
1369.66
1101.74
%
m/z
100
0
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000
2100
2200
2300
2400
2500

Figure 7

INTERNATIONAL SEARCH REPORT

International application No.
PCT/AU2004/001368

A. CLASSIFICATION OF SUBJECT MATTER

Int. Cl. [7]: C07D 207/34, 209/56, 233/90; A61K 31/4164, 31/40; A61P 35/00, 31/18, 31/12

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
STN CAS-Online: substructure search

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 1998/049142 A1 (CARLIFORNIA INSTITUTE OF TECHNOLOGY) 5 November 1998 See whole document	13, 17-20
X	WO 2003/041128 A2 (PHARMACIA CORPORATION) 15 May 2003 See whole document	13, 17-20
X	US 4942227 (DERVAN et al) 17 July 1990 See whole document, especially, columns 87-90	13
X	WO 1999/062551 A1 (BOARD OF REGENTS, THE UNIVERSITY OF TEXAS SYSTEM) 9 December 1999 See whole document, especially pages 31-34	13, 17-20

[X] Further documents are listed in the continuation of Box C [X] See patent family annex

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
3 December 2004	14 DEC 2004
Name and mailing address of the ISA/AU AUSTRALIAN PATENT OFFICE PO BOX 200, WODEN ACT 2606, AUSTRALIA E-mail address: pct@ipaustralia.gov.au Facsimile No. (02) 6285 3929	Authorized officer **O.L. CHAI** Telephone No : (02) 6283 2482

INTERNATIONAL SEARCH REPORT

International application No.
PCT/AU2004/001368

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2003/020877 A2 (PHARMACIA CORPORATON) 13 March 2003 See whole document, especially Example XVII, pages 12, 90, 91	13
X	BARALDI P G et al, "Design, synthesis and in vitro cytotoxicity of a cis-dichloroplatinum (II) complex linked to the minor groove binder stallimycin" Arzneimittel-Forschung (2003), 53(2), 107-113 See abstract, structural formulae at page 108, Scheme 1 (compounds 10,11)	13
X	Belitsky, Jason M et al, "Cellular uptake of N-methylpyrrole/N-methylimidazole polyamide-dye conjugates" Bioorganic & Medicinal Chemistry (2002), 10(10), 3313-3318 See Figure 1	13, 17-20
X	Pitie, Marguerite et al, "Mechanisms of DNA cleavage by copper complexes of 3-Clip-Phen and of its conjugate with a distamycin analogue" Nucleic Acids Research (2000), 28(24), 4856-4864 Copper complex of conjugates 1, 2 and 3 in Figure 1	13
X	Loskotova, Hana et al, "DNA interactions of cisplatin tethered to the DNA minor groove binder distamycin" European Journal of Biochemistry (1999), 266(2), 392-402 See Figure 1	13
X	Swalley, Susanne et al., "Effects of .gamma.-Turn and .beta.-Tail Amino Acids on Sequence-Specific Recognition of DNA by Hairpin Polyamides" Journal of the American Chemical Society (1999), 121(6), 1113-1120 See Figure 2	13
X	Lee, Moses et al, "Novel platinum(II) derivatives of analogs of netropsin and distamycin: synthesis, DNA binding and cytotoxic properties" Medicinal Chemistry Research (1996), 6(6), 365-371 See abstract and Figure 2	13, 17-20
X	Sugurdsson, Snorri Th. et al, "Synthesis and reactions with DNA of a family of DNA-DNA affinity crosslinking agents" Tetrahedron (1994), 50(42), 12065-84 See scheme 1, compounds 1-3 cross linked to distamycin	13
X	Huang, Liren et al, "Design of DNA-cleaving molecules which incorporate a simplified metal-complexing moiety of bleomycin and lexitropsin carriers" Bioorganic & Medicinal Chemistry Letters (1993), 3(8), 1751-6 See scheme 4, Fe(II)-hybrid complexes	13
X	Youngquist, R. Scott et al, "A synthetic peptide binds 16 base pairs of A,T double helical DNA" Journal of the American Chemical Society (1987), 109(24), 7564-6 See Figure 2	13

INTERNATIONAL SEARCH REPORT

International application No.
PCT/AU2004/001368

This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent Document Cited in Search Report		Patent Family Member					
WO	1998049142	AU	25268/97	AU	37347/97	AU	41450/97
		AU	61517/98	AU	61588/98	AU	62552/98
		AU	64334/98	AU	64341/98	AU	67576/98
		AU	71040/98	CA	2247889	CA	2279959
		CA	2280806	CA	2281843	CA	2281930
		CA	2281947	CA	2281948	CA	2286232
		CA	2288806	CA	2299455	CN	1260006
		EP	0885189	EP	0958508	EP	0964703
		EP	0968186	EP	0973740	EP	0973798
		EP	0986539	EP	0991417	EP	1007729
		EP	1023288	US	5998140	US	6087663
		US	6090947	US	6143901	US	6303312
		US	6472537	US	6506906	US	6545162
		US	6555692	US	6635417	US	6660255
		US	6683189	WO	1997030975	WO	1998035242
		WO	1998035702	WO	1998037066	WO	1998037067
		WO	1998037087	WO	1998045284	WO	1998050058
		WO	1998050582				
WO	2003041128	CA	2465886	EP	1451856	US	2003109448
US	4942227	US	4529401	US	4665184		
WO	1999062551	AU	42321/99	CA	2334809	EP	1082138
		NO	20006155	US	6207660		
WO	2003020877	NIL					

Due to data integration issues this family listing may not include 10 digit Australian applications filed since May 2001.

END OF ANNEX

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